August 1958
JPH
VOLUME 48 NUMBER 8

AMERICAN Journal of Public Health AND THE NATION'S HEALTH

new... wide-range nitrofuran
controls the "problem pathogens" of
bacterial diarrheas and enteritis

FUROXONE®

Brand of furazolidone

FUROXONE LIQUID

A finely divided suspension containing Furoxone, 50 mg. per 15 cc., with kaolin and pectin for added demulcent and adsorptive effect ▪ Pleasant orange-mint flavor ▪ For patients of all ages (may be mixed with infant formulas; passes through a standard nursing nipple)

▪ Supplied in bottles of 240 cc.

FUROXONE TABLETS

Scored brown tablets containing Furoxone, 100 mg.

▪ Supplied in bottles of 20 and 100 tablets.

▪ **Perorally effective against a wide range of enteric bacteria[1,2]—including common pathogenic species and strains of Escherichia, Salmonella and Staphylococcus not adequately controlled by antibiotics and sulfonamides.** ▪ **Bactericidal rather than bacteriostatic.**

▪ **Does not induce development of significant bacterial resistance, nor predispose to monilial or staphylococcal overgrowth.**

▪ **No toxicity reported.[1]**

▪ **Side effects infrequent. Mild sensitization (rash), nausea or emesis may occur occasionally.**

1. Ponce de Leon, E.: Antibiotic Med. & Clin. Therapy 4:816, 1957.

2. McFaddin, H. W. and Musselman, M. M.: Personal communication to Eaton Laboratories.

NITROFURANS—A unique class of antimicrobials

Products of Eaton Research

Eaton Laboratories, Norwich, New York

Official Monthly Publication of the American Public Health Association, Inc.

AMERICAN
Journal of Public Health
AND THE NATION'S HEALTH

CONTENTS • AUGUST 1958
VOL. 48, NO. 8

Articles

PAGE

Program Planning for Radiological Health 965
HERMAN E. HILLEBOE, M.D., AND ALEXANDER RIHM, JR., M.C.E.

Problem in Voluntary Insurance: Some Answers from the Windsor Experience 971
BENJAMIN J. DARSKY; NATHAN SINAI, DR.P.H.; AND SOLOMON J. AXELROD, M.D., M.P.H.

The Committee on the Costs of Medical Care—25 Years of Progress:
I. Introductory Remarks 979
I. S. FALK, PH.D.
II. Developments in Group Medical Practice 983
C. RUFUS ROREM, PH.D., C.P.A.
III. Hospital Growth and Changes 986
ALDEN B. MILLS
IV. Group Payment Since the Committee on the Costs of Medical Care 990
LOUIS S. REED, PH.D.
V. Growth of Public Services Since 1932 993
NATHAN SINAI, DR.P.H.
VI. 25 Years of Research in Medical Economics 995
MARGARET C. KLEM

Problems in the Interpretation of Trends in the Population Movement of the Public Mental Hospitals 1003
MORTON KRAMER, SC.D., AND EARL S. POLLACK

Increase of Tuberculosis Mortality in Elderly Men from 1940 to 1950 . . . 1020
MARY A. MONK, PH.D., AND MILTON TERRIS, M.D.

Continued on page iv

Eighty-Sixth Annual Meeting

American Public Health Association

St. Louis, Mo., October 27–31, 1958

Articles, continued

PAGE

The Future of Health Education in the Light of the Concept of the Interdependence of Nations 1031
THERON H. BUTTERWORTH, PH.D., M.S.P.H.

Building Status and Public Support for Health Teaching in Schools . . . 1037
BERNICE R. MOSS, ED.D.

Freezing and Irradiation 1041
JOHN T. R. NICKERSON, PH.D.; BERNARD E. PROCTOR, PH.D.; AND S. A. GOLDBLITH, PH.D.

Auxiliary Personnel in Medical Practice 1049
JOHN L. CAUGHEY, JR., M.D.

The Potential Role of the Dental Hygienist in Public Health Programs . . 1054
MARTHA H. FALES

Extending the Field for Dental Auxiliary Personnel in the United States . . 1059
JAMES M. DUNNING, D.D.S., M.P.H.

Journal Departments

EDITORIALS:

Community Aspects of Staphylococcal Disease 1065
Chemicals in Food as a Public Health Problem 1066
APHA Field Evaluation—The St. Louis Survey 1068

Letter to the Editor 1069
THOMAS M. RIVERS, M.D.

The American Hospital Association's Report on "Prevention and Control of Staphylococcal Infections in Hospitals" 1071

Clearing House on Public Health Salary Information and Personnel Needs . 1075

Credit Lines 1078

American Public Health Association News 1083
James Leonard Troupin, M.D., M.S.P.H., and Edward Wellin, Ph.D., New Staff Members. Uniform Accident Definitions. Eighty-Sixth Annual Meeting, St. Louis, Mo., October 27–31, 1958: Hotel Rates and Hotel Reservation Form, Map of Downtown St. Louis.

News of Affiliated Societies and Branches 1087

Employment Service 1091

Books and Reports 1096

Books Received 1101

A Selected Public Health Bibliography with Annotations 1103
Raymond S. Patterson, Ph.D.

News from the Field 1106

Conferences and Dates 1114

The American Journal of Public Health is published by the American Public Health Association, Inc., at 374 Broadway, Albany 7, N. Y. Executive office 1790 Broadway, New York 19, N. Y. Subscription price $12.00 per year for United States, elsewhere $13.00 to cover postage and handling. Single copies $1.25 postpaid. Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879. Published monthly. Copyright 1958, by the American Public Health Association, Inc. The American Journal of Public Health is indexed in the Industrial Arts Index and, in part, in the Quarterly Cumulative Index Medicus, Biological Abstracts, Chemical Abstracts, Engineering Index, and Public Affairs Information Service.

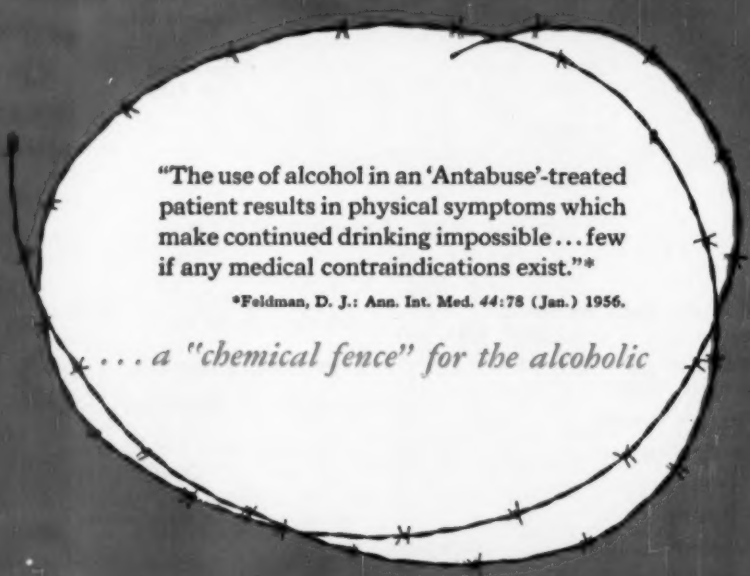
Address all correspondence to the Managing Editor, 1790 Broadway, New York 19, N. Y.

clinically proved in alcoholism

"ANTABUSE"®

brand of DISULFIRAM (tetraethylthiuram disulfide)

Feldman reports:
"... 'Antabuse' therapy constitutes a major advance in treatment."*



"The use of alcohol in an 'Antabuse'-treated patient results in physical symptoms which make continued drinking impossible ... few if any medical contraindications exist."*

*Feldman, D. J.: Ann. Int. Med. *44*:78 (Jan.) 1956.

... a "chemical fence" for the alcoholic

A brochure giving full details of therapy will be sent to physicians upon request.

"ANTABUSE" is supplied in 0.5 Gm. tablets (scored), bottles of 50 and 1,000.

AYERST LABORATORIES • New York, N. Y. • Montreal, Canada

5554

JOSIAH MACY, JR. FOUNDATION

Announces two new books

ADMINISTRATIVE MEDICINE

Transactions of the Fifth and Final Conference

Edited by George S. Stevenson, National and International Consultant
National Association for Mental Health

The discussions at this conference centered around mental health elements in administration of general health programs, the administrative role in management of a mental hospital, and coordination of local resources: techniques and devices for communication and cross-fertilization.

$3.75

GROUP PROCESSES

Transactions of the Third Conference

Edited by Bertram Schaffner
University Seminar on Communications, Columbia University

The main topics under discussion in this volume are interpersonal influences within the family, interpersonal persuasion, further studies on maternal-neonate interrelationships, and Chinese Communist thought reform.

$4.00

JOSIAH MACY, JR. FOUNDATION PUBLICATIONS
16 WEST 46th STREET, NEW YORK 36, NEW YORK

Please make checks payable to Josiah Macy, Jr. Foundation
A catalogue of all transactions in print will be sent upon request

INDEX TO ADVERTISERS

	Page
American Public Health Association:	
Book Service	XXIII, XXIV, XXV
Membership Application Blank	XXIII
Sustaining Members	XXII
American Meat Institute	XIV
American Seal-Kap Corp.	XXVIII
Ayerst Laboratories	V
Cereal Institute, Inc.	XIX
Difco Laboratories	Back Cover
Directory of Exhibits	XXVI, XXVII
Directory of Health Service	XXVIII
Black & Veatch	
Dickman Laboratories	
Everson Manufacturing Corp.	
Emerson Venable, P.E.	
Professional Examination Service, APHA	
Diversey Corporation	XV
Eaton Laboratories	II
Florida Citrus Commission	XXIX
Hoffmann-LaRoche Inc.	VIII, IX
International Equipment Co.	XVIII
Josiah Macy Jr. Foundation	VI
Lederle Laboratories Division, American Cyanamid Company	XVI
Lehn & Fink Products Corporation	XII
Leitz, E., Inc.	X
Oval Wood Dish Corp.	XXI
Parke, Davis & Co.	XIII
Powers X-Ray Products, Inc.	XXI
Professional Tape Company, Inc.	XX
Reed & Carnrick	XVII
Upjohn Company, The	VII
Wyeth, Inc.	XI

A new way to stretch the public health dollar...

Up to 90% of the cost of insulin injections, given by a public health nurse in the patient's home, is saved when the diabetic patient is switched to Orinase. In one large city, the cost of injections per welfare patient is $2.75 daily, including both the cost of insulin and of the nurse who injects it. With Orinase, the total cost can be reduced to 20¢ or 25¢ a day.

Whenever therapeutic trial is warranted (80% of aged, debilitated, and generally obese diabetics usually respond), Orinase offers physicians excellent control of the patient, and better control of the public health dollar.

*TRADEMARK, REG. U.S. PAT. OFF.—TOLBUTAMIDE, UPJOHN

Upjohn THE UPJOHN COMPANY, Kalamazoo, Michigan

ORINASE*

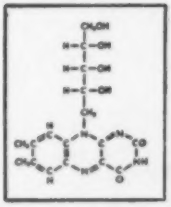
INSIDE SCIENCE

The Vital Story

A Quick History. Independent investigators, working separately to unlock several of nature's doors, sometimes open up unsuspected relationships. This happened with vitamin B_2.

Investigations. About 25 years ago, several groups, notably Warburg's, were investigating a "yellow enzyme" obtained from yeast. Almost simultaneously other investigators were studying a food factor that aided growth of laboratory animals.

What they found. Proceeding with chemical analysis of this growth factor, the team of Kuhn, György, and Wagner-Jauregg noted a relationship between the growth-producing agent and the "yellow enzyme." Their findings, and those of other researchers along similar lines, were published in 1933. Eventually, riboflavin and an essential part of the yellow enzyme were found to be identical and the unity of an essential nutrient and cellular metabolism was established.



Isolation of pure riboflavin was achieved by Kuhn and his co-workers, and by Ellinger and Koschara, in 1933.

Nomenclature. Known in the United States as riboflavin, this vitamin has also been called lactoflavin, ovoflavin, hepatoflavin, and vitamin G.

SYNTHESIS

By 1935, two eminent chemists, working separately, had synthesized riboflavin, practically in a dead heat. Prof. Paul Karrer of the University of Zurich, a collaborator of the Hoffmann-La Roche Laboratories, produced the first successful synthesis. Five weeks later Richard Kuhn of Germany announced his synthesis of the vitamin. Prof. Karrer subsequently shared the Nobel Prize in Chemistry for his work in vitamins and carotenoids.

The Karrer synthesis forms the basis for chemical processes in widespread use today by Hoffmann-La Roche and other leading manufacturers throughout the world. Riboflavin is also manufactured today by fermentation methods.

CHEMICAL AND PHYSICAL PROPERTIES

Riboflavin is yellow, slightly water-soluble with a greenish fluorescence and a bitter taste. Its empirical formula is $C_{17}H_{20}N_4O_6$. Vitamin B_2 produced by the Roche process is identical in every way with that occurring in nature.

How does vitamin B_2 work? Riboflavin is a vital part of nature's chain of reactions for utilization of carbohydrate energy. It has been found to be a constituent of many enzyme systems and is thus intimately connected with life processes. It is probably required by the metabolic processes of every animal and bird as well as by many fishes, insects and lower forms of life. (In certain animals, however, the requirement may be synthesized by bacteria within the intestine.)

In the cells riboflavin goes to work attached to a phosphate group. This substance, known as riboflavin-5′-phosphate or flavin mononucleotide, may in turn be attached to still another essential substance, adenylic acid, forming flavin adenine dinucleotide. Either nucleotide then is attached to protein, thereby forming an enzyme, and takes its part in oxidation-reduction reactions.

Requirements in Human Nutrition. As we have seen, vitamin B_2 is essential to life. We have no special storage organs in our bodies for this vitamin, although a certain level is maintained in various tissues, with relatively large amounts found in the liver and kidneys.

MEASURING METHODS

In the beginning, riboflavin activity was described in "Bourquin-Sherman units" and requirements were thought to be very small. Subsequent research showed otherwise. Milligrams of weight became the unit and the Food & Drug Administration of the U. S. Dept. of Health, Education & Welfare has established a minimum daily requirement of 2.0 mg. of riboflavin for all persons 12 or more years old. For infants it is 0.5 mg. These requirements are designed to prevent the occurrence of symptoms of riboflavin deficiency disease. The minimum daily requirement for this vitamin for children from 1 to 12 years has not been established by the F. & D. A.

Recommended allowances. The Food & Nutrition Board of the National Research Council has recommended the following daily dietary allowances of riboflavin, expressed as milligrams. These are designed to maintain good nutrition of healthy persons in the U. S. A.

			Boys	Girls
Men			1.6	
Women			1.4	
"	(3rd trimester of pregnancy)		2.0	
"	(Lactating)		2.5	
Infants,	1-3 months		0.4	
"	4-9	"	0.7	
"	10-12	"	0.9	
Children,	1-3 years		1.0	
"	4-6	"	1.2	
"	7-9	"	1.5	
Adolescents,	10-12 years		1.8	1.8
"	13-15	"	2.1	2.0
"	16-20	"	2.5	1.9

# of VITAMIN B_2 *by* Science Writer

(Riboflavin)

Deficiencies of vitamin B_2 appear in several ways in human beings. The eyes, the skin, the nerves, and the blood show the effects of too little riboflavin. Laboratory animals have demonstrated that a riboflavin-deficient diet can cause death of adults and can slow or stop growth in the young. Female animals, deprived of riboflavin in the diet, may produce offspring with congenital malformations.

Medical uses. To overcome and control deficiencies in human beings, physicians have pure riboflavin available for administration by injection or orally, by itself or with other "B" vitamins or multi-vitamin-mineral combinations.

How do we get our daily riboflavin? Vitamin B_2 has wide distribution throughout the entire animal and vegetable kingdoms. Good sources are milk and its products, eggs, meats, legumes, green leaves and buds. Whole-grain cereals have significant but not large amounts of riboflavin.

ADDITION TO FOODS

Cereal foods play a large part in our diet. To produce the white flour almost all of us want, millers are obliged to remove parts of the wheat that contain much of the grain's riboflavin and other nutrients. In addition, cereal grains are not rich sources of riboflavin. Millers meet this problem by *enriching* the grain foods for which federal standards exist with vitamins B_1, B_2, niacin and the mineral iron. In the case of vitamin B_2, however, they do more than *restore* the processed food to its natural riboflavin level; they *fortify* the food with enough of this essential vitamin to make it nutritionally more valuable than it was in nature.

Acting to protect the good health of millions of Americans, bakers and millers adopted *enrichment* of white bread and white flour in 1941. Since that time, other foods, such as macaroni products, corn meal and grits, farina, pastina and breakfast cereals have had their food value increased by enrichment with pure riboflavin and other vitamins and minerals.

When enriching, fortifying or restoring, food manufacturers add the necessary quantity of riboflavin (and other vitamins and minerals) to the food during processing, so that the finished product meets federal, state, and territorial requirements or contributes to the consumer an amount of the vitamin that dietary experts believe significantly useful.

PRODUCTION

Prof. Karrer's synthesis of riboflavin was a laboratory success. Adapting the process to commercial production, however, demanded original thinking by chemists at Hoffmann-La Roche. The production of riboflavin by chemical synthesis requires the production of ribose, a rare sugar, at an early stage in the process. This special sugar must be made inexpensively if the synthesis is to be practical. Sugar chemistry is a difficult matter. In a brilliant piece of work, the Roche chemical experts developed a method to produce ribose on a commercial scale by an electrolytic process, thus overcoming a most troublesome problem. Subsequently, Roche chemists developed the first practical synthesis for riboflavin-5′-phosphate, identical with natural flavin mononucleotide.

Picture three streams joining to form a river and you have a simplified idea of the Roche process for synthesizing vitamin B_2. O-xylene and glucose are processed separately to form xylidine and ribose respectively. These are joined to form ribitylxylidine, which is then converted to ribitylaminoxylidine. Starting separately with malonic ester, which is processed through intermediate stages to alloxan, the third "stream" is then joined with ribitylaminoxylidine to form riboflavin. Purification occurs at each step of the synthesis. Riboflavin 'Roche' equals or exceeds U. S. P. standards.

By the tons. So efficient is the Roche process that pure riboflavin is produced *by the tons* for use in pharmaceutical products and processed foods. An interesting development by Roche is the production of riboflavin in different forms related to the method of end use. 'Roche' Regular riboflavin U. S. P. is especially useful in dry enrichment premixes, powdered dietary supplements, pharmaceutical tablets and soft gelatin capsules. 'Roche' Solutions type is preferred for the manufacture of solutions having low concentration. 'Roche' Riboflavin-5′-Phosphate Sodium is a highly and rapidly soluble riboflavin compound favored for all pharmaceutical liquid products and some tablets, lozenges, and capsules. It has a more pleasant taste than the bitter U. S. P. riboflavin.

This article is published in the interests of pharmaceutical manufacturers, and of food processors who make their good foods better using pure riboflavin 'Roche.' Reprints of this and others in the series will be supplied on request without charge. Also available without cost is a brochure describing the enrichment or fortification of cereal grain products with essential vitamins and minerals. These articles and the brochure have been found most helpful as sources of accurate information in brief form. Teachers especially find them useful in education. Regardless of your occupation, feel free to write for them. Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 1956 Bourdon St., St. Laurent, P. Q.

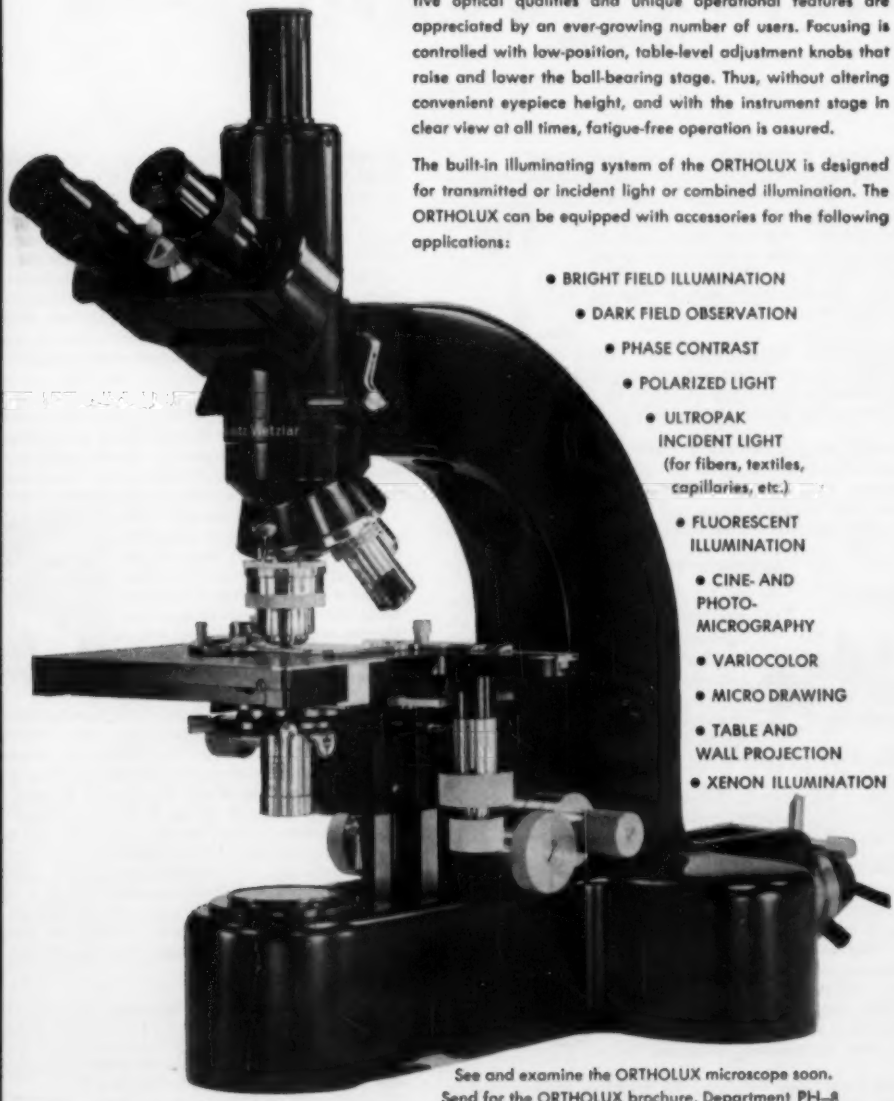
unsurpassed for image quality and operational versatility

Leitz **ORTHOLUX** *RESEARCH MICROSCOPE*

The ORTHOLUX microscope has no equal as a research tool in the leading scientific laboratories in the country. Its superlative optical qualities and unique operational features are appreciated by an ever-growing number of users. Focusing is controlled with low-position, table-level adjustment knobs that raise and lower the ball-bearing stage. Thus, without altering convenient eyepiece height, and with the instrument stage in clear view at all times, fatigue-free operation is assured.

The built-in illuminating system of the ORTHOLUX is designed for transmitted or incident light or combined illumination. The ORTHOLUX can be equipped with accessories for the following applications:

- BRIGHT FIELD ILLUMINATION
- DARK FIELD OBSERVATION
- PHASE CONTRAST
- POLARIZED LIGHT
- ULTROPAK INCIDENT LIGHT (for fibers, textiles, capillaries, etc.)
- FLUORESCENT ILLUMINATION
- CINE- AND PHOTO-MICROGRAPHY
- VARIOCOLOR
- MICRO DRAWING
- TABLE AND WALL PROJECTION
- XENON ILLUMINATION



See and examine the ORTHOLUX microscope soon.
Send for the ORTHOLUX brochure, Department PH–8

21459

E. LEITZ, INC., 468 FOURTH AVENUE, NEW YORK 16, N.Y.
Distributors of the world-famous products of
Ernst Leitz G.m.b.H., Wetzlar, Germany—Ernst Leitz Canada Ltd.
LEICA CAMERAS · LENSES · MICROSCOPES · BINOCULARS

Dialogue from a small patient...

Um-m-m!

BICILLIN®

Wyeth

ORAL SUSPENSION

Philadelphia 1, Pa.

Benzathine Penicillin G (Dibenzylethylenediamine Dipenicillin G)

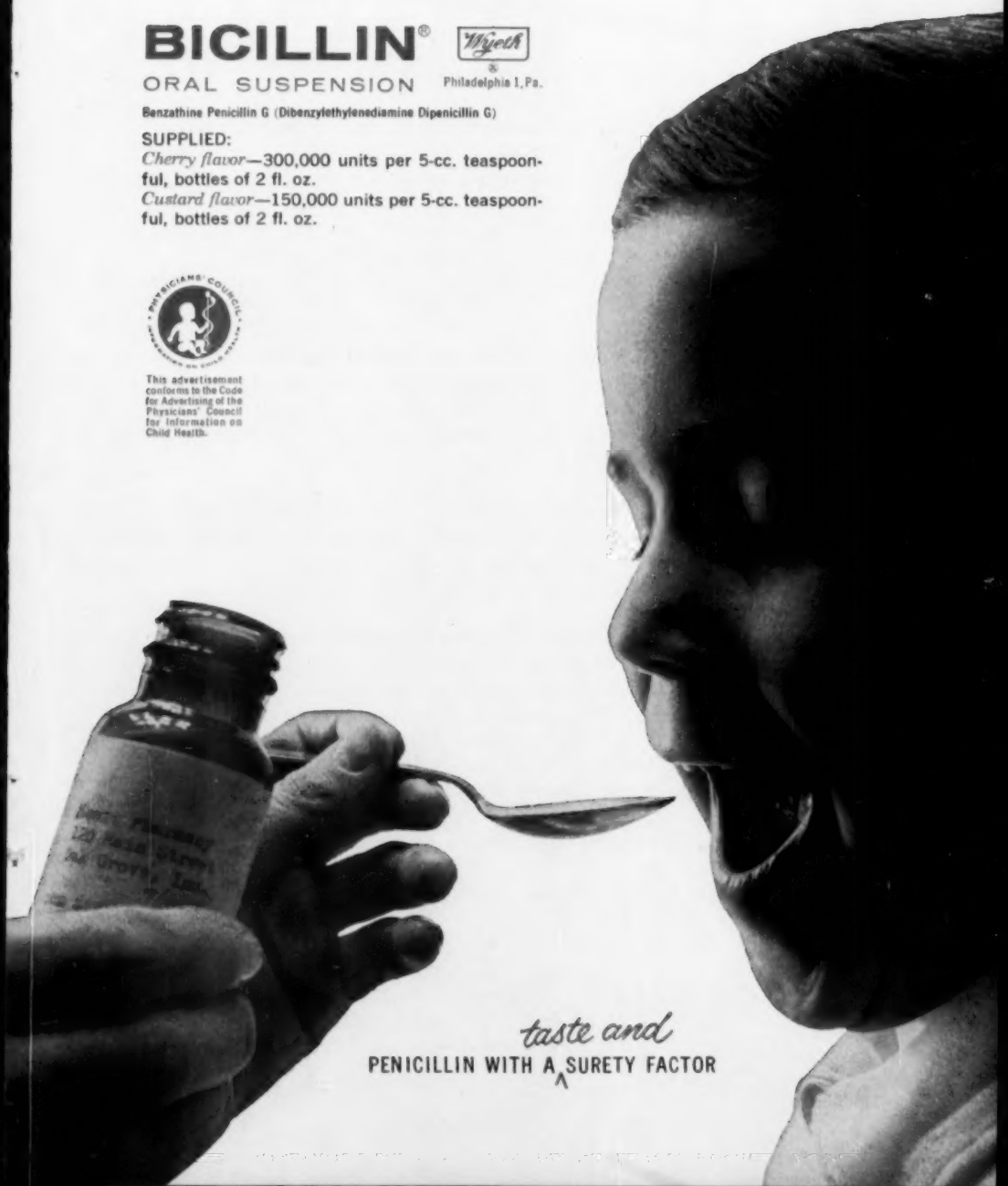
SUPPLIED:

Cherry flavor—300,000 units per 5-cc. teaspoonful, bottles of 2 fl. oz.

Custard flavor—150,000 units per 5-cc. teaspoonful, bottles of 2 fl. oz.

PHYSICIANS' COUNCIL

This advertisement conforms to the Code for Advertising of the Physicians' Council for Information on Child Health.



taste and

PENICILLIN WITH A SURETY FACTOR

SPECIAL MESSAGE TO PUBLIC HEALTH OFFICERS

Now that you are confronted with the immediate need to take prompt and positive action to combat cross infections in hospitals, may we help you? Here are three ways we can -

1) If you are helping the hospital set up a standing committee to study the problem, we can supply supplementary information to aid in analyzing the problem.

2) If you are working with the committee in identifying trouble spots and establishing methods for stopping outbreaks and reducing incidence, we can suggest hospital-tested disinfection technics for each area of the hospital.

3) If you are recommending control procedures and overseeing their observance, we can provide practical methods for increasing disinfection procedures without creating a financial burden for the hospital.

(Our new detergent-disinfectant, called TERGISYL,™ is an important weapon here. It has all the proven germicidal effectiveness of the phenolics plus greater detergency than many cleaning products used alone. Comparative time studies show that TERGISYL™ reduces the man-time required for washing and disinfecting floors by 47%.)

Please call on us. Product literature and samples are available, as well as the assistance of our technical staff, if you wish.

Professional Division
LEHN & FINK PRODUCTS CORPORATION
445 Park Avenue, New York 22, N. Y.

BERMUDA GRASS *common cause of* **HAY FEVER**

Benadryl®

antihistaminic • antispasmodic

commonly prescribed for relief...

When Bermuda Grass and other grasses produce annoying allergic symptoms at this time of year, BENADRYL provides quick and comprehensive relief. Its antihistaminic action promptly relieves nasal blocking, rhinorrhea, itching and related histamine reactions, while its atropine-like antispasmodic effect suppresses bronchial and gastrointestinal spasms.

Caution is suggested in prescribing BENADRYL for use at times or under conditions where sedation or atropine-like action is contraindicated.

BENADRYL Hydrochloride (diphenhydramine hydrochloride, Parke-Davis) is available in a variety of forms—including Kapseals,® 50 mg. each; Kapseals, 50 mg., with ephedrine sulfate, 25 mg.; Capsules, 25 mg. each; Elixir, 10 mg. per 4 cc.; and Emplets,® 50 mg. each, for delayed action. For parenteral therapy, Benadryl Hydrochloride Steri-Vials,® 10 mg. per cc.; and new Ampoules, 50 mg. per cc.

PARKE, DAVIS & COMPANY
DETROIT 32, MICHIGAN

45659

For Speedier Return to Normal Nutrition

Meat...

in Inflammatory Conditions of the Colon

The physiologic depletion accompanying acute infectious and inflammatory conditions of the bowel makes replacement therapy the key to nutritional rehabilitation.

In addition to the loss of important electrolytes, such as potassium and sodium, large amounts of protein are lost in the fluid, blood and exudate from the bowel. In the acute state of such affections, utilization of what protein can be ingested is further affected by increased protein catabolism and by impairment of certain hepatic functions.

Dietary rehabilitation must be carried out within the framework of a diet restricted in fiber and in irritating substances. Foods allowed must be easily digested and appetizingly and attractively prepared to encourage eating.

Tender lean meats—finely ground in the initial diet and later served in a wide variety of appealing ways—can be an important source of the protein and minerals required by the convalescing patient.

Meat fits admirably into the requirements of the permitted diet not only because of its taste, digestibility, and physical characteristics, but also because of its contribution of high quality protein, the minerals potassium, iron, phosphorus, sodium, and magnesium, and all the known B vitamins.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago...Members Throughout the United States

. . . If we had it all to do over again . . .

We would still put prime emphasis on research and service . . . research into newer and better products giving superior sanitation economically . . . research into advanced techniques and new concepts making the sanitation job easier, faster and more effective . . . research into all facets of scientific sanitation.

. . . and service you can count on from men with "know-how" . . . "shirt-sleeve" service that works with you on all sanitation problems . . . fast service when and where you need it.

On this our 35th Anniversary, we continue to put unrelenting emphasis on research and service . . . and if you check with us after 100 years, you would still find our company progressing on this same firm basis.

DIVERSEY.

1820 ROSCOE STREET, CHICAGO 13, ILLINOIS

1923
35 YEARS OF
1958

RESEARCH PROGRESS SERVICE

SYPHILIS ANTIGENS Lederle

Your Choice to Fit Your Needs

V. D. R. L. ANTIGEN Lederle. A cardiolipin-lecithin-cholesterol antigen for use in either the slide or tube flocculation test of serum or spinal fluid, qualitative or quantitative. Cardiolipin is manufactured by Lederle under license from the New York State Department of Health.

KAHN STANDARD ANTIGEN (Cholesterinized) Lederle. A cholesterinized alcoholic extract of beef heart for use in the Kahn precipitation test for syphilis, standardized under the supervision of Dr. Reuben L. Kahn Laboratory.

LAUGHLEN REAGENT Lederle. For rapid, reliable, inexpensive serodiagnosis of syphilis. Has as its base a precipitation test antigen as used in the Kahn test, to which have been added standardized amounts of cholesterol, balsam, and scarlet R dye. Especially adapted for routine use in small hospitals and clinics, and for emergency use.

LEDERLE PRODUCTS FOR LABORATORY MEDICINE ARE PREPARED AND TESTED ACCORDING TO THE HIGHEST STANDARDS

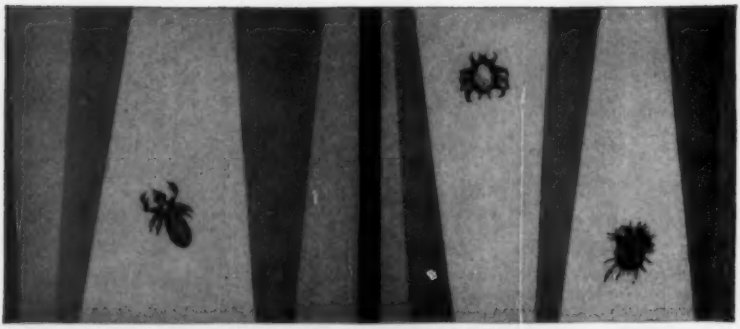
AGENTS FOR LABORATORY USE: BLOOD GROUPING, Rh TYPING, and ANTIHUMAN (Coombs Test) SERUMS, NIH-approved; BLOOD CULTURE MEDIUM; E. COLI TYPING SERUMS*; FEBRILE ANTIGENS; SALMONELLA GROUPING and TYPING SERUMS*; SHIGELLA GROUPING SERUMS; PASTEURELLA TULARENSIS TUBE ANTIGEN; VIRAL and RICKETTSIAL ANTIGENS. *Prepared according to CDC methods and standards.

AGENTS FOR CLINICAL USE: LYMPHOGRANULOMA VENEREUM SKIN TEST ANTIGEN and CONTROL; TRICHINELLA EXTRACT and SALINE CONTROL; TUBERCULIN PATCH TEST (Vollmer).

For further information contact the Lederle representative through your hospital pharmacy, or write:

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK

Lederle



KWELL®

GAMMA BENZENE HEXACHLORIDE 1%

new
shampoo

ERADICATES
PEDICULOSIS CAPITIS AND PUBIS
IN 4 MINUTES

"A single shampooing sufficed to eradicate infestation . . . in all cases...in a few minutes." ■

Gardner, J.: J. Pediat. 52:448 (Apr.) 1958.

SUPPLIED: KWELL Shampoo: bottles of 2 & 16 fl. oz.

cream & lotion

IN SCABIES,
CHIGGERS AND
PEDICULOSIS

95% to 100% effective in 1 treatment — acts fast — non-irritating — nonstaining. ■

SUPPLIED: KWELL Cream: jars of 2 oz. & 1 lb. — KWELL Lotion: bottles of 2 & 16 fl. oz.

R&C REED & CARNRICK / Jersey City 6, New Jersey

SAFE

for use in
Class I, Group D locations!

INTERNATIONAL
EXPLOSION-PROOF CENTRIFUGE

Listed by Underwriters' Laboratories and the Canadian Standards Association, this Size 2 Model EXD Centrifuge has explosion-proof ¾ hp motor, control housing and electrical fittings. So, it's safe for use in all Class 1 Group D atmospheres. This model accommodates all heads and other accessories used in the International Size 2 Centrifuge and with corresponding speeds and forces.

SAFE

for centrifuging infectious materials!

INTERNATIONAL
SEALED ACCESSORIES

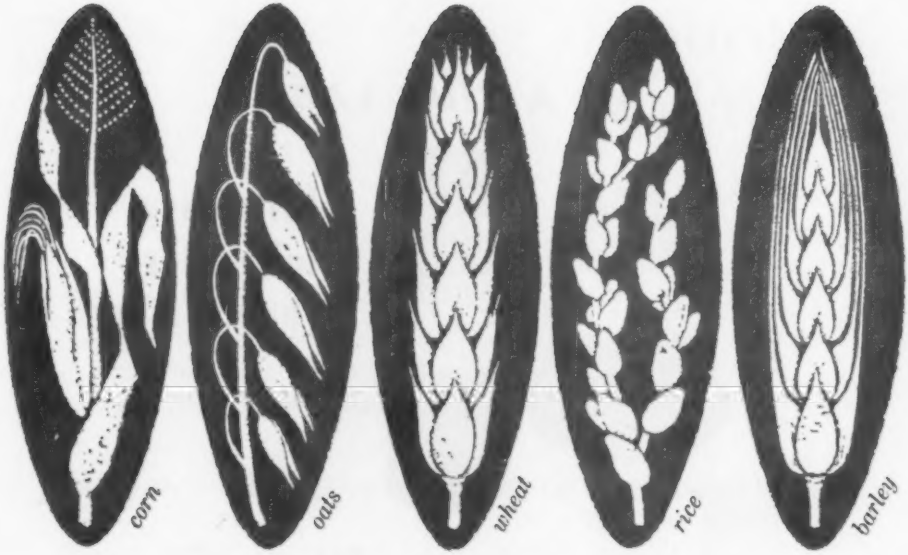
Developed for the U. S. Army Biological Warfare Laboratories, Fort Detrick, Maryland, International Sealed Accessories are now being used for centrifuging TB sputum, fungi and other infectious materials without risk of contaminating centrifuge and surrounding air. New, enlarged line includes cushioned Duralumin cups and stainless steel shields with air-tight screw-on covers for holding all standard centrifuge bottles and tubes.

What is your special centrifuging problem?

International, with its problem-solving experience since 1901, has created new Centrifuges and Accessories for better, faster and safer performance. Designed with operational safety a foremost consideration, each Centrifuge and each piece of accessory equipment bears the IEC seal of quality and is carefully overload tested.
There is no finer combination than genuine International accessories in an International Centrifuge.

International Equipment Co.

1202 SOLDIERS FIELD ROAD, BOSTON 35, MASS., STadium 2-7900
International — your dependable source for centrifugal force



the calories in the cereal and milk serving are well balanced and low in fat

In the light of the modern trend toward less fat in the diet and for quick and lasting energy foods, the calories in the cereal and milk serving merit consideration. Both the cereal and the milk contribute well-balanced nourishment.

This serving provides quick and lasting energy, is *low in fat*, and is a good source of many nutrients as shown in the table below. It furnishes about 10 per cent of the daily needs of protein, important B vitamins, and essential minerals. Served with nonfat milk, the fat content is very low.*

nutritive composition of average cereal serving

	Cereal, 1 oz. Whole Milk, 4 oz. Sugar, 1 teaspoon	Cereal** 1 oz.	Whole Milk 4 oz.	Sugar 1 teaspoon
CALORIES	203	104	83	16
PROTEIN	7.3 gm.	3.1 gm.	4.2 gm.	
FAT	5.3 gm.	0.6 gm.	4.7 gm.*	
CARBOHYDRATE	32.2 gm.	22 gm.	6.0 gm.	4.2 gm.
CALCIUM	0.169 gm.	0.025 gm.	0.144 gm.	
IRON	1.5 mg.	1.4 mg.	0.1 mg.	
VITAMIN A	195 I. U.	—	195 I. U.	
THIAMINE	0.16 mg.	0.12 mg.	0.04 mg.	
RIBOFLAVIN	0.25 mg.	0.04 mg.	0.21 mg.	
NIACIN	1.4 mg.	1.3 mg.	0.1 mg.	
ASCORBIC ACID	1.5 mg.	—	1.5 mg.	
CHOLESTEROL	16.4 mg.	0	16.4 mg.*	

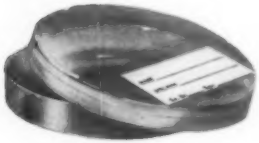
*Nonfat (skim) milk, 4 oz., reduces the Fat value to 0.1 gm. and the Cholesterol value to 0.35 mg.
**Based on composite average of breakfast cereals on dry weight basis.

Bowes, A. deP., and Church, C.F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. deP. Bowes, 1956.
Cereal Institute, Inc.: The Nutritional Contribution of Breakfast Cereals. Chicago: Cereal Institute, Inc., 1956.
Hayes, O. B., and Rose, G. K.: Supplementary Food Composition Table. J. Am. Dietet. A. 33:26, 1957.

CEREAL INSTITUTE, INC. • 135 South LaSalle Street, Chicago 3
A research and educational endeavor devoted to the betterment of national nutrition

A TIME LABEL

for every laboratory requirement!



It's safe...

SURE and ACCURATE!

TIME self-sticking LABELS are used without wetting. They are fast, safe and provide positive identification with complete safety from hepatitis and other laboratory infections.

They are excellent for use on microscopic slides, bottles (glass and plastic), radioactive containers, animal cages and hundreds of other laboratory uses. They are moistureproof and resist autoclave temperatures to +250°F. or deepfreeze temperatures to −70°F.

BE SAFE . . . BE SURE . . . use TIME LABELS! Custom labels and color coding are available for specific requirements.

TIME SELF-STICKING LABELS VINYL COATED

Write today for complete detailed literature on the outstanding advantages of TIME LABELS.

PROFESSIONAL TAPE CO., INC.
355 BURLINGTON AVE. • Dept. 41-C • RIVERSIDE, ILL.

Journal of Public Health

It is already a truism that we must learn to live with nuclear energy and its consequences. How does an official health agency do this? In this paper Dr. Hilleboe discusses the why and the how of a state-wide program for prevention or control of radiation hazards.

PROGRAM PLANNING FOR RADIOLOGICAL HEALTH

Herman E. Hilleboe, M.D., F.A.P.H.A., and Alexander Rihm, Jr., M.C.E.

RECENT DEVELOPMENTS in the field of atomic energy and the increasing use of radioactive materials and radiation equipment have prompted health departments to consider the organization of programs for the control of ionizing radiation. Health departments have no choice but to prepare now to meet, what may become, one of the most important environmental problems of the future. In the past, the hazards associated with polluted water, contaminated food and milk supplies were present and known to us before programs were planned for their control. Therefore, we have thought largely in terms of a corrective program rather than of one to prevent the occurrence of new hazards.

In the past, protection against radiation was not looked upon primarily as a public health problem. Steps had been taken by some state agencies to reduce occupational exposure to radiation but generally little was done to reduce public exposure. With the advent of the atomic era, some states took steps to control radioactive wastes, but, in general, this problem was left to the federal government.

We have no means to make atomic wastes innocuous and these wastes will continue to accumulate in our environment. Therefore, health authorities must make certain that they accumulate in a manner which is not detrimental to our welfare. Improved diagnostic technics utilizing powerful x-radiation are coming into more widespread use. Their benefits must be evaluated in terms of potential radiation injury. We do not want to curb the proper use of professional technics, nor restrict the beneficial use of atomic energy, providing their benefits outweigh the damages that might result.

Of importance to health workers is the fact that radiation damage is peculiar in its nature since the injury may not become evident for a considerable time after the exposure occurs. Because of this peculiarity there is inadequate information concerning the incidence of

human injury or damaging genetic effects. We know too little about such things as the effect of radiation on the life span, the production of diseases like leukemia, or on the rate of development of mutations in our population.

Radiation damage differs from injury due to other agents in another important way. There is evidence to indicate that biological damage occurring as a result of exposure to radiation is never completely repaired. In the case of genetic damage, the residual injury is directly proportional to the dose.

Who is affected by radiation, and to what degree, is a difficult problem to solve. However, we do know that practically everyone receives some exposure as a result of the medical and dental use of x-rays. There are very few people who have not been exposed to a chest, dental or some other routine diagnostic x-ray procedure. All of us are exposed to a certain amount of natural background radiation. We are receiving more and more exposure, although to a limited extent, from fallout due to nuclear tests now being carried on in many parts of the world. In the population as a whole, however, the medical and dental applications of radiation account for the largest part of the exposure to which the human race is now being subjected.

Answers to a number of practical questions must be found before a radiation protection program can be initiated. We must know what radiation hazards exist, where they exist, and why. We also must know the groups directly affected and to what degree. When we have obtained this information, we can estimate what benefits can be expected of a control program, and what role a health department should play.

For example, by means of a survey, we found that in New York State approximately 33 per cent of the physicians and 96 per cent of the dentists operate x-ray machines in their offices. Preliminary investigations made on a representative sample of these installations indicated that many hazards existed. They were present, not alone because of a disregard for danger, but more so because the operator had not had the equipment regularly checked to determine the hazards.

Orderly development of controls and full explanations to the public can prevent most of the emotional impact which might injure the atomic energy industry unnecessarily and also interfere with the proper medical care of our population. The public and special-interest groups should be assured that an independent evaluation of radiation hazards is available from public health authorities. Recently many critical questions have been raised regarding the routine use of x-rays by physicians, dentists, and other licensed practitioners. Mass chest x-ray surveys have also received their share of criticism. Our experience in the past with the fruitful benefits of the use of x-rays and particularly the mass chest screening surveys in the early detection of diseases of the heart and lungs, makes the continuation of these programs both advisable and profitable. Nevertheless their benefits need to be currently evaluated in terms of the hazards involved.

In dentistry, the routine use of x-ray films has become essential for detection of early lesions which could be corrected before too much tooth structure had been lost. Dentistry has, however, become acutely concerned about excessive radiation since the dentist frequently takes several intraoral films to make an adequate mouth examination. The dentist has the same responsibility as the physician for having equipment calibrated and in avoiding unnecessary exposure, especially of the gonadal region.

For veterinarians employing x-ray and fluoroscopic equipment under ordinary conditions, the same meticulous precautions must be observed, but, in this

instance, primarily for the protection of the examiner.

Assistance in program planning and development can be obtained by health departments from professional societies whose members use radiation in their daily work. The Radiological Society and the medical, dental and veterinary societies in New York have, at our request, appointed special committees to work with the department on radiation problems. These committees have also worked with the members of their respective societies in an educational campaign to reduce radiation hazards.

In general, because the problem is so new, health departments have not achieved the technical competence in radiological health, that they have in many other fields. Program planning is difficult when technical assistance is not close at hand. However, there are many experts in radiation protection available for consultation within reasonable access from universities and research centers who can furnish the needed technical assistance.

In New York, a Technical Advisory Committee composed of representatives of the medical and dental societies, the Atomic Energy Commission, the Public Health Service, as well as independent radiation experts was appointed before we started our program. Any organization undertaking to work with an advisory committee must first have some concept of what it proposes to do before seeking the advice of such a committee. For instance, when our Health Department first called in the advisory committee, we had already delineated our problem, established preliminary objectives and outlined the activities in which we thought the Health Department should engage. When it met, our advisory committee emphasized the need for education, inspection, enforcement and research, and, in addition, suggested improvements in our program plan.

The major objectives of a radiological health program should be to prevent, reduce and, when possible, eliminate unnecessary exposure to ionizing radiation in the environment where people live, work, and play. A typical Health Department program plan for radiological health should establish the following major functions:

I. Determine the extent and character of the radiation problem.

II. Reduce exposure to radiation by supervising installations and providing assistance to local health units which can perform this supervision when they are staffed to do so.

III. Obtain new information and develop better methods of control by research and by evaluation studies.

Operational activities under each of the above headings include one or more of the following:

1. to locate all detectable sources of ionizing radiation,
2. to train personnel—you can seldom recruit them,
3. to keep informed on new developments in the application of radiation in order to control new hazards which may be created,
4. to determine the legislative and regulatory needs,
5. to gain support of various professional societies and citizen groups for the program,
6. to encourage self-discipline among personnel authorized to use radiation,
7. to evaluate technics and results in the control program.

We set up a Section on Radiological Health and Air Sanitation in our State Health Department to carry out this program. The first step in the development of the New York program was the preparation of a detailed plan. The program plan outlined the hazards which were faced, the need for initiating a program, the objectives we hoped to accomplish and the functions which we proposed to perform to achieve these objectives.

During the early developmental phases, we found that it was necessary to have legislation enacted and regulations promulgated in order to establish standards and to provide means for bringing about

correction of the hazards known to exist. We found that a minor amendment had to be made in our Public Health Law to empower our department to engage in these new activties. Consideration was given to the advisability of establishing either requirements in the law or regulations in the Sanitary Code. A study indicated that the requirements should be established in the Sanitary Code for a number of reasons. The most important one was that the Sanitary Code is a flexible instrument formed by our Public Health Council; it can be amended at monthly intervals, yet it has the force of law.

One of the problems we faced in 1953 was that there were very few codes or standards—such as exist today—at the time we began studying this subject. Since the adoption of the New York State Code, the federal government has issued regulations for users of certain radioactive materials and has offered a model code for use by the states in dealing with all radiation uses. With modifications, this guide is easily adaptable to the needs of an individual state. In 1953 our Public Health Council first enacted a regulation governing the operation of shoe-fitting fluoroscopes. In 1955, after two years study, a comprehensive radiation code was adopted by the Public Health Council.

On the basis of experience and further review, a number of revisions to the code have been made since 1955. For instance, our Public Health Council has adopted a regulation, effective July 1, 1958, prohibiting the application of radiation to human beings unless the application is made by a person licensed or authorized to practice medicine, dentistry, podiatry, or osteopathy under the provisions of our Education Law, or unless the use is directed or ordered by a licensed person. This will prevent the untrained shoe store operators from using shoe-fitting fluoroscopes, and eventually will eliminate unlicensed and self-designated healers from using x-ray machines for so-called "diagnosis." Manufacturers can be prohibited from selling x-ray equipment to unlicensed persons. This is prevention, by eliminating the source of danger.

One of the regulations requires the registration of sources of radiation; it also requires the reporting of changes in installations and of new installations. We used this regulation as a means of accomplishing our first operational activity, namely, to locate sources of radiation. In order to assist the users of radiation in this registration procedure, our department sent report forms to every practicing physician, dentist, veterinarian, podiatrist and osteopath in the state, as well as to all known radioisotope users.

In planning broad health programs, jurisdictional difficulties are frequently encountered by health departments. In New York by law and by tradition, the State Department of Labor has the responsibility for industrial hygiene. The Department of Health has jurisdiction over all health activities in the community outside of the industrial plant. Here is a potential area of conflict. Fortunately, the Labor Department began a study of the radiation problem at about the same time as our department. The two departments worked together amicably in the formulation of joint programs and we were successful in formulating complimentary codes which, together, cover all ordinary uses of radiation. We distributed our activities on a basis which was mutually agreeable. Similar arrangements were worked out with the state's air pollution and water pollution control boards.

To promote the development of atomic energy industries and to coordinate the activities of all the departments in the state, Governor Harriman in 1955 appointed a Council on the Use of Nuclear Materials. This consisted of the Commissioners of Health, Labor and Com-

merce, with the commerce commissioner as chairman. At a later date, a member of the Public Service Commission was added to this council. The council holds regular meetings to review state-wide activities, to discuss new developments, and to exchange information. We have developed working arrangements with industries like the Knolls Atomic Power Laboratory and Brookhaven National Laboratories to safeguard jointly against unnecessary contamination of air, water, and soil.

Since 1955 our department has performed inspections and has provided consultation to all users of radiation. The inspection phase of our program was slow in starting because of the need for training our staff and the staffs of local health departments. It was necessary for us to train approximately 125 engineers and sanitarians to perform the field work associated with our routine program. Our radiation training activities assumed a high priority. We were fortunate in having the generous cooperation of the radiological health training staffs of the Public Health Service and Atomic Energy Commission as well as the University of Rochester. Our public health physicians also received short orientation courses on the subject and a few of the men who were to administer the programs and who were to provide special technical assistance to our district, county, and city health departments, received more extensive training. Lack of qualified staff continues to plague us, and keeps our state and local programs at a modest level; much too modest to meet the current and growing needs.

In New York we are encouraging self-discipline in the use of radiation. Many of our larger institutions have appointed radiation safety committees, have employed radiation safety officers and have formalized rules and regulations governing all pertinent operations. Such action shows an awareness of the problem and a desire on the part of the user to minimize the harmful effects of radiation.

Hospitals and institutions which desire a guide for establishing rules and regulations governing radiation would do well to study those developed by the Johns Hopkins Medical Institutions. A committee, headed by Dr. Russell Morgan, professor of radiology, investigated all aspects of the problem and on February 1, 1957, issued rules and regulations for the information, guidance and compliance of all individuals in these institutions who use radioactive materials, or equipment that produces radiation.

Finally, research and evaluation studies should be important components of any radiation program conducted by a state health department. Some of the larger county and city health departments can carry on research activities independently and also can participate in some of the state-wide projects. In New York State we have under way a study of the radioactive content of water, food, milk and air; we are preparing for a study on the amount of radiation to which individuals are exposed from the use of x-ray machines. Our Bureau of Maternal and Child Health is exploring the possibility of studies of children who have been repeatedly x-rayed because of congenital heart disease and similar conditions requiring frequent x-ray exposure. In cooperation with the Air Pollution Control Board, which is attached to the State Health Department, plans are being developed to enlarge our sampling network for determining radioactivity in the air. Our Division of Laboratories and Research has a modest group doing service and research in radiological health.

Little mention has been made of the harmful effects of fallout radiation from weapons testing. The major concern as pointed out by the Advisory Committee on Biology and Medicine of the Atomic

Energy Commission has been to keep the testing of nuclear weapons at a minimum consistent with scientific and military requirements. The recent report of this committee should be read by all public health workers and its contents widely distributed to correct the present state of confusion and misunderstanding.

In conclusion, the protection of the public against ionizing radiation from x-ray and radium-producing equipment, industrial installations, radioisotopes and the possible use of atomic weapons, is a problem that should concern every state and local health department. The public health profession shares the responsibility for keeping the amount of radiation in the environment at a minimum at all times, so as to reduce the threat to the health and life of all our citizens. We have the special talents and tools to attack public health problems of this magnitude and character, and we are prepared to share these resources with all other government agencies and private groups concerned with this growing problem. Engineering, education, and enforcement with special attention to human factors will be just as applicable to this program as to any other public health activity. Rigid observance of scientifically-prescribed rules on the use of radiation-producing equipment and on the use, storage, transportation and disposal of all radioactive materials is the only precise way of guarding against the hazards of excess radiation.

Atomic fission and fusion, spawned in this fabulous 20th century, have radically changed the environment for every living creature on the face of the earth. Only by preventive action now, and continuing vigilance in the future, can we hope to avoid the devastating effects of unnecessary exposure to ionizing radiation.

Dr. Hilleboe is commissioner of health and Mr. Rihm is the former chief, Radiological Health and Air Sanitation Section, State Department of Health, Albany, N. Y. He is now executive secretary, New York State Air Pollution Control Board.

This paper was presented before a Joint Session of the Dental Health, Engineering and Sanitation, Health Officers, and Occupational Health Sections of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

Rehabilitation Methods Courses

The Institute of Physical Medicine of the New York University-Bellevue Medical Center has announced its rehabilitation courses for the academic year 1958–1959. A four-week course for physical and occupational therapists will be given three times, November 17–December 12, 1958; February 2–27, 1959; and April 27–May 22. Tuition for this course, which carries four hours of graduate or undergraduate credit is $120.

A seminar in rehabilitation methods for nurses is given October 20–November 7, 1958; January 5–23, 1959; and March 30–April 17. The tuition is $100 and credit is three hours.

Students in either workshop may remain for additional clinical practice and observation field trips for which the tuition is $25 per week.

Application forms and further information from Mrs. Edith Buchwald Lawton, Institute of Physical Medicine and Rehabilitation, 400 East 34th St., New York 16.

Can comprehensive prepaid medical care be provided on a fee-for-service basis? The experience in Windsor, Ontario, indicates that it can. This paper analyzes the problem as it concerns home and office care about which there has been much controversy.

PROBLEM IN VOLUNTARY INSURANCE: SOME ANSWERS FROM THE WINDSOR EXPERIENCE

Benjamin J. Darsky; Nathan Sinai, Dr.P.H., F.A.P.H.A.; and Solomon J. Axelrod, M.D., M.P.H., F.A.P.H.A.

THIS PAPER reviews and summarizes data pertaining to Windsor Medical Services, a prepayment plan sponsored by a local medical society and which provides physicians' care in the home, office and hospital, on a fee-for-service basis, to approximately 85 per cent of the 160,000 people in the metropolitan area of Windsor, Ontario, Canada. Although the study of this unique plan provides a further source of data for those with a technical interest in the field of prepayment, a more important purpose is served if Windsor is viewed as a laboratory where some of the assumptions that prevail in the field of prepayment are tested.

Accordingly, this discussion is concerned, in part, with an analytic review of certain major problems affecting the development of comprehensive physicians' services under prepayment. Why is it that fewer than 5 per cent of our population have available to them benefits under insurance for the full range of physicians' services and that most of the plans which do offer this protection are not sponsored by the organized medical profession but are viewed by it with alarm?

Some of the basic issues raised by these questions are reviewed in the light of the Windsor data. While all the problems and assumptions will not be resolved here, the conclusions should not be viewed as applicable only within the narrow boundaries of Windsor itself. Although the procedures whereby the Windsor data can be generalized cannot be detailed here, it is expected that like results would be obtained for similar urban, industrialized communities in the United States.

The areas of controversy over comprehensive benefits for physicians' services can be classified into those related to the public, those related to the physician and medical practice, and those related to the administration of the plan.

With regard to the public, three central issues emerge. First is the question whether home and office benefits are economically necessary; second, the extent to which home and office benefits are subjects to abuse; and third, whether the public would be willing to pay the higher premiums for comprehensive protection. Stated in its most crude form, the argument says "People really don't need protection against home and office services; anyway, even if they did they wouldn't want to pay for it; and, if they had it, they would demand all sorts of unnecessary care."

Taking the problem of need first and restating it in a form that is amenable to testing, the following assumption becomes evident: Because home and office services amount to only a few dollars per visit, they therefore involve only minor, if any, economic hardship for most people. That is, the assumption is made that not only the cost per service, but the accumulation of these costs over a given period of time is modest. Therefore, families can and should budget for this contingency and insurance should be reserved for services and procedures whose high costs are beyond the reach of most family budgets, such as surgical procedures and medical services associated with hospitalized illness.

If this assumption is, in truth, basic in an analysis of need, it can be tested by examining the distribution of services and costs for home and office care in the population. Is the assumption that home and office services involve only modest costs true? According to the data, when individuals only are considered, about 1,664 persons of the 160,000 persons in the Windsor metropolitan area received 40 or more home and office services during the study year; about 2,640 obtained 30 or more services; and approximately 5,000 saw a physician in the home or office 20 or more times. If we set the average cost of a home and office call at five dollars (a very modest figure considering that this category of calls includes night calls, consultations, refractions, diagnostic x-rays, minor surgery, and so forth), then in the community of Windsor, about 5,000 patients utilized home and office care amounting to $100 or more during the year; about 2,600 received care amounting to $150 or more, and about 1,700 people obtained home and office care amounting to $200 or more.

Families in general exhibit a similar pattern, although a greater proportion of families than individuals incurred very high costs. For example, of the 52,000 families in Windsor about 8,000 used the equivalent of $100 or more in home and office care alone, about 2,500 families used $150 or more, and 1,500 families used home and office care equivalent to $200 or more.* About 350 families used over 100 services, or more than $500 in home and office care; one family received 254 services or the equivalent of $1,270 worth of care.

While we should not overlook the important fact that the majority of individuals and families receive relatively few home and office services during any given year, it is quite clear that some receive many services, and for them the costs for this type of care are high indeed.

The assumption that home and office care involves only minor, if any, economic hardship is, therefore, only partially true, and departs from truth precisely to the extent that it does not provide the protection for which the insurance mechanism is intended—the protection against hazards which, though relatively rare, are still sufficiently prevalent to warrant organized social action.

One other aspect of this problem of need deserves comment. Need for comprehensive benefits can be defined as that increment of utilization which the individual receives by virtue of belonging to the plan. Thus, a greater utilization by the plan's subscriber as compared with the rest of the population may be presumptive evidence of need, ignoring for the moment any problems of abuse. By this logic, the plan indicates a significant need for home and

* The estimates for the individual sample were derived independently of the estimates for the sample of families; the two samples were quasi-independent. Therefore, the estimates vary independently and cannot be expected to agree except within sampling error. Although it may appear that fewer families than individuals received "40 or more" and "30 or more" services—an apparent impossibility—the estimates are well within expected sampling error.

office benefits. Compared with subscribers to limited insurance plans, 17 per cent more Windsor Medical Services subscribers initiated some medical care during the year and compared to persons with no insurance, 33 per cent more saw a physician—care which they otherwise would not have received if they did not have comprehensive protection.

Similarly, the average number of home and office services obtained by the plan's subscribers who received care was about 40 per cent greater than the average number of services received by members of the limited plans and 15 per cent greater than people without insurance. After adjusting for differences in the composition of these three groups, that is, Windsor subscribers, limited plan subscribers, and those with no insurance, it is clear that Windsor subscribers both initiate care more often and receive more services once care is sought.

These data, then, strongly suggest that comprehensive benefits fulfill an economic and medical need in the community, if it can be assumed that these measures imply the legitimate use of services and not abuse. It is therefore necessary now to consider the second issue relating to the public's role in comprehensive insurance—the problem of overutilization by the patient. The assumption that home and office benefits are particularly subject to abuse through "nuisance claims" is based upon the fact that unlike surgery or other services in the hospital, the initiation of most home and office visits depends upon the patient's own definition of need rather than on a physician's decision. The inevitable tendency, therefore, is to utilize the benefits for medically trivial reasons. For the subscriber this means unnecessarily high premiums and for the physician unnecessary demands on his time and temper.

The test of this assumption seems to be a reasonably simple one. If the problem centers on the first few visits, as the deductible feature in insurance implies, then it is a matter of comparing the proportion of the plan's subscribers who received one or more services with the proportion of nonsubscribers who received that number of services. If the plan encourages overutilization for trivial reasons, then we would expect a significantly higher proportion of Windsor subscribers to have received few services. The data clearly show that this is not the case. First, about 33 per cent of subscribers to the comprehensive plan did not avail themselves of any care during the year. Second, when the total population is divided into Windsor plan subscribers, limited-benefit plan subscribers and people without insurance, the proportion of persons who received the various number of services are statistically indistinguishable. The data show that 26 per cent of Windsor subscribers used only one physician's service during the year, compared with 33 and 36 per cent of the other two groups. Similarly, about 17 per cent of the people enrolled in the Windsor plan used two services during the year, the same proportion as subscribers to the limited benefit plans. The proportions receiving three services are also almost identical. These data do not necessarily mean that the plan subscribers may not be overutilizing their benefits, but rather that if abuse is present, it has no relationship to comprehensive prepayment. As a matter of fact, the most interesting finding is that despite the over-all higher utilization of services by the plan's subscribers, the plan has about the same proportion of low, medium, and high users as the rest of the population.

If the various measures that imply a need for comprehensive benefits are not invalidated by the assumption of abuse, what then can be said of the remaining problem which is directed at the public —that they are unwilling to pay the

additional premium cost for expanded benefits. This question, if applied to the population in the United States, cannot be stated in a testable form. First, the public's reaction will be influenced by the size of the premium and few realistic premium calculations have been presented. Second, and equally important, few people in this country have had experience with full protection and are therefore unable to evaluate its advantages or disadvantages. The most reasonable test of the public's willingness to purchase such protection is the purchasing behavior of the population in those communities, like Windsor, where choice is predicated upon availability and experience. Three payment systems exist side by side in Windsor—comprehensive prepayment, limited prepayment, and pay-as-you-go. Participants in each, it can be assumed, have some knowledge of the other systems, often as former participants. Therefore, a critical test of the public's willingness to purchase comprehensive benefits is the extent to which participants in each of the three payment systems would be willing to pay a stipulated additional amount for more comprehensive protection.

Eighty per cent of the current subscribers to the comprehensive plan would be willing to pay even more than they now do to retain their present benefits. Equally important, about three-fourths of the subscribers to limited benefit plans are willing to pay the same arbitrarily selected amount of $3 per month more than their current premium for the type of protection Windsor Medical Services offers. Finally, it is clear that many in the group who currently have no insurance are not excluded by self-choice. About two-thirds of them would pay the additional premium if they had the opportunity to enroll.

As a summary comment about the relationship between comprehensive prepayment and the public, it is fair to say that the Windsor experience does not support the assumptions of no need, abuse, and apathy. Quite the contrary, the population's utilization behavior shows there is an important function for insurance which covers the home and office component of medical care, and that the rates by which people seek medical care is an orderly and predictable process with no evidence of wide and precipitate fluctuations when the barrier of direct cost is removed. Furthermore, it is also evident that protection of the kind afforded by the plan is an important element in the security expectations of most of the population.

When the review of problems is shifted from the public and focused on the relationship of comprehensive prepayment to medical practice, two major issues emerge which involve the two basic "freedoms" around which most medical practice is organized. One is freedom in the relationship of the physician with the patient, particularly with regard to treatment and patient control. The other is freedom in the attainment of the social and economic rewards of practice according to the potentialities inherent in individual skill and enterprise. With respect to freedom from interference with his patients, it is recognized that a prepayment plan requires regulation over certain aspects of practice which would otherwise be solely the responsibility of the individual physician. Some control on services rendered is, therefore, expected. Furthermore, many physicians voice the fear that an already too prevalent tendency by patients to "shop around" and demand certain procedures will be aggravated by removing direct payment. With respect to the second freedom—the economic rewards of practice—adherence to a fee schedule which covers almost all aspects of medical practice and where no additional charges may be made, implies for many physicians a lower income or at least a limitation on potential earning capacity. In this way the specter of

"third party" control is joined with the fear of reduced income and the two together assume the substance of reality instead of retaining the shape of assumption.

What impact does a comprehensive plan have on medical practice in a modern, urban, industrial community such as Windsor? To answer this question, it is convenient to discuss three somewhat separate aspects of the problem. First, the effect of the plan on patient management. Second, the plan's effect on the physician's income, and last, the effects of the plan's administrative procedures on practice.

The first of these—problems in physician-patient relationships—involves the assumptions that removal of cost barriers to home and office care inevitably aggravates the tendency for patients to shop around from one physician to another, encourages the demand for unnecessary home calls, and stimulates the demand for unnecessary services. Taking these in order, the issue of "shopping around" was tested by obtaining data on the following questions:

Do the plan's subscribers contain a smaller proportion of people with a regular doctor than the rest of the population?

Do subscribers to the comprehensive plan receive a smaller proportion of their physicians' services from their regular doctor?

Do subscribers to the comprehensive plan see more physicians?

If the answers to these questions are "yes," then "shopping around" may be considered to be a probable consequence of the plan. If the data answer the questions in the negative, then it is similarly probable that the plan has, in fact, nothing to do with this behavioral pattern. The data answer each of the questions with a "no."

About 92 per cent of the plan's subscribers have a physician to whom they usually go when they need care, a somewhat higher proportion than the rest of the population. Furthermore, subscribers to the plan received 71 per cent of all their home and office care from their regular doctor, an amount very similar to that obtained by other people in the community. And lastly, there appears to be no pronounced indication that Windsor Medical subscribers see more physicians. About 70 per cent received all their care from a single physician during the entire year, compared with 74 per cent of the remaining part of the population. About 20 per cent of both subscribers and nonsubscribers saw two different physicians; only very few in either group had recourse to three or more different practitioners.

The hypothesis that the permissive character of the plan encourages the demand for unnecessary home calls is also disproved. The plan includes home calls without added charges as a subscriber benefit, yet, Windsor Medical Services subscribers received approximately the same per cent of home calls, 13 per cent of all services, as compared with the 15 per cent for people who do not belong to the plan.

In the course of providing home and office care, an irritating element is the demand by patients for services or treatment that the physician thinks unnecessary. To the extent that these services no longer require a direct out-of-pocket payment, it is thought that the plan may encourage the demands. To check this assumption, the physicians in Windsor were asked to indicate how large a problem this was in their practices. The responses were categorized by groups of physicians according to the proportions of plan subscribers in their patient loads. If the plan encouraged the problem of unreasonable demand, then it would be expected that the more plan subscribers a physician had, the greater would be his concern with the problem. Although physicians with large Windsor Medical Services practices report more concern

with the problem than those who have relatively few plan subscribers, the data do not exhibit the consistency necessary to confirm the hypothesis. The most vulnerable group of physicians—those with over 75 per cent of their practices made up of subscribers in the plan—are less bothered by unnecessary demands than those with a smaller proportion, 50–75 per cent, of subscriber-patients and only slightly more concerned than those physicians with the lowest proportions of plan patients. All that can be reasonably said is that the plan seems to have some influence on demands for unnecessary services, but that apparently other, more significant, factors are involved.

In this connection, an interesting datum emerged concerning the physician's own judgments about shopping around and home visits. Despite the clear evidence obtained by an analysis of actual number of services, Windsor physicians tend to believe that the plan encourages these problems and thus they follow the assumptions of tradition. This demonstrates, if nothing else, that Windsor physicians are like American physicians after all.

The next major issue in the relationship of comprehensive insurance to medical practice is concerned with the plan's effect on the physician's income. The heart of the controversy is the problem of a fixed fee schedule with the acceptance of the fees as full payment and all that this implies for the income of the physician. The nature of this issue is such that it is almost impossible to test, in any direct way, the proposition that Windsor physicians are economically better or worse off than physicians whose income is derived in the traditional way. Instead, certain pieces of data will be presented, the composite of which will reasonably indicate a satisfactory or unsatisfactory state of affairs.

First, the average income of the Windsor physicians appears to be generally comparable with that of physicians in the United States, if differences in per-capita income between the areas and other adjustment factors are taken into account. In the study year, 1954, Windsor physicians in full-time practice received a net income (after expenses, but before taxes) of $13,762. The range of incomes was considerable, with about 6 per cent having incomes of less than $2,500 and 8 per cent earning $25,000 or more. Variations in average income by specialty status were similar to those in this country—full specialists had a higher average income ($14,165) than general practitioners ($13,232).

This income is considered by Windsor physicians to be in line with or exceeding their expectations. When current income is judged by the physician according to expected income "at this point in your career" almost three-fourths of the physicians in full-time practice are earning as much or more than they expected to. General practitioners, as a whole, have fared best in terms of their own expectations; 33 per cent are earning more money than they would have predicted compared to 19 per cent of the full specialists.

In discussing these data, it should be borne in mind that a major proportion of the Windsor physician's income in 1954 (60 per cent) came from the plan; only 20 per cent was provided through patient fees and 20 per cent came from other sources.

As far as the study could determine, the fees paid by the plan are generally similar to those paid by noninsured patients. For example, the plan's subscribers constitute an average of about 68 per cent of the total patient load and account for about 60 per cent of the physician's total income. Pay-as-you-go patients account for about 20 per cent of patient load and also 20 per cent of income. Thus when fees are averaged over all physicians and services, the

plan's fee schedule and private charges are quite similar.

A further indication of the plan's effect on income is the satisfaction or dissatisfaction expressed by the physicians with their economic dependence on the plan. Over the years, more and more of their income comes from the plan. For example, about two-thirds of the physicians in Windsor reported that the proportion of their incomes derived from the plan has increased compared to the past year or so. Yet, about 80 per cent are quite satisfied with this greater dependence. This does not imply that problems do not exist in the adjustment that the physician makes to the plan's payment system. The two most important considerations are first criticisms of specific items in the fee schedule, and second, the compensating satisfactions with a stable income and certainty of payment. Although the fee schedule was the most frequent object of criticism, the majority view was a reasonable one. About 25 per cent of the physicians thought the schedule to be generally satisfactory, 55 per cent wanted some changes made and only 16 per cent thought that major revisions were necessary. Opposite to this stand the important economic satisfactions due to the plan's stabilizing effect on income and building up a practice. About 70 per cent of the physicians indicated that the plan has helped them gain a steady, assured income without the hazards of collections and other uncertainties. Similarly, slightly more than half acknowledged the plan's help in building up their practices.

By thus putting together the various data which relate to income, the economic position of Windsor physicians seems to be generally more satisfactory than unsatisfactory—judging by both the physician's evaluation of his own position and by objective measures.

Another issue in this discussion of the plan's effect on medical practice deals with the problem of "third party" control—that is, the state of the relationship between physicians and the plan's administrative routines. Again the complexities of this issue warrant more detailed treatment, but some summary conclusions can be presented here. In general, there appears to be little friction or antagonism between physicians and administrators. First, physicians feel that the plan is well within the purview of their control—that it is their plan. About two-thirds are satisfied with the voice physicians have in determining plan policy. Second, an equal number, about two-thirds feel that the plan generally represents their interests and adequately takes into account their different points of view. Apart from the fee schedule, which was discussed earlier, almost all other administrative routines of the plan were generally satisfactory. For example, the paper work required of a physician participating in the prepayment plan is often thought to be oppressive, yet streamlined IBM procedures used by the plan appear to be eminently satisfactory—96 per cent of the physicians did not want to see any changes made in the method of reporting.

The last issue to be discussed briefly is the stubborn assumption that it is economically unfeasible to provide home and office benefits under prepayment because of the costs involved in processing small claims. The statement is freqeuntly heard that the expense of processing these low cost claims approaches the cost of the claim itself, so that the whole procedure is wasteful and self-defeating. The tenacity of this assumption is bewildering in view of the fact that its validity is subject to the relatively simple and accepted test of cost accounting methods. When this was done, it was quite apparent that the facts do not accord with the assumption. For the cost accounting month selected for study, there were 47,750 claim cards submitted

for a total of 71,998 services or 1.51 services per claim card. Calculating the costs of processing these claims by standard accounting methods, the average processing cost per claim was 14 cents, or 2.3 per cent of the claim. The processing cost per service was 9 cents.

These then are a few of the findings of the detailed study. Up to this time comprehensive physicians' care has not been a feature of the great majority of plans that provide physicians' services in the United States. In the light of the study of Windsor Medical Services the reasons given for the generally restricted pattern of physicians' services in prepayment plans do not appear to be valid.

The authors are associated with the Bureau of Public Health Economics, School of Public Health, University of Michigan, Ann Arbor.

This paper was presented before a Joint Session of the Labor Health Administrators and the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

The study was made possible by a grant from the Health Information Foundation which the authors gratefully acknowledge.

Postdoctoral Science Fellowships

The National Science Foundation is accepting applications through October 15, 1958, for both the Senior Postdoctoral and Science Faculty Fellowships which are now awarded annually in December rather than biennially as in previous years. Awards will be made in the mathematical, physical, and engineering sciences; medical and biological sciences including anthropology and psychology (excluding clinical psychology); and in selected social science fields, as well as interdisciplinary fields that overlap two or more scientific disciplines.

To be eligible for either type of fellowships, candidates must be citizens of the United States; for the Senior Postdoctoral they must have special aptitude for advanced training and must have held the doctoral degree for at least five years or have equivalent education and experience.

The Science Faculty Fellowships are directed toward college teachers of science who wish to improve their competence as teachers. These are open to applicants who hold a baccalaureate degree or its equivalent, have demonstrated ability and special aptitude for science teaching and advanced training, have taught at the collegiate level as full-time faculty members for not less than three years and intend to continue teaching. Final selection of approximately 100 Senior Postdoctoral and 300 Science Faculty Fellows will be made by the National Science Foundation and announced on December 5, 1958.

There are studies in the history of public health that represent turning points and which become classics. Chadwick's report comes to mind, of course. In this tradition is the work of the Committee on the Costs of Medical Care, which is reviewed in this panel discussion, 25 years later.

THE COMMITTEE ON THE COSTS OF MEDICAL CARE—25 YEARS OF PROGRESS

I. INTRODUCTORY REMARKS

I. S. Falk, Ph.D., F.A.P.H.A.

TWENTY-FIVE years ago this month (November, 1932) the Committee on the Costs of Medical Care published its final report—a document which changed the course and the pace of evolution for the health services of the United States. It is, therefore, timely that we review progress in the years that have elapsed.

My function in this panel session is to introduce you to the CCMC and its immediate sequelae if you are very young and to recall its genesis and its progeny if you are among the aging.

The committee was a self-constituted private organization of about 50 persons, organized in 1927 "to study the economic aspects of the care and prevention of illness." The members represented the private practice of medicine and dentistry, public health, diverse institutions, and special interests concerned with health, the social sciences, and the public. It obtained grants from eight foundations,* aggregating about $750,000 over its five-year lifetime. Dr. Ray Lyman Wilbur, a distinguished leader in medicine, education, and public affairs, was chairman.† Professor C-E. A. Winslow, whose recent death we mourn, was vice-chairman and also chairman of the Executive Committee. The late Harry H. Moore was director of study, and for the last three years I had the privilege of being associate director in charge of research. Five members of the committee's able staff are on the panel.

The committee's studies were broad in scope; they dealt with medical care needs, resources, and expenditures; professional and institutional investments, costs and incomes; standards of good care; existing provisions and practices in representative communities; illness, care, and costs among representative families; the costs of medicines and various types of services; ability to pay for medical care; and with many special organized provisions to serve par-

* The Twentieth Century Fund, the Milbank Memorial Fund, the Russell Sage Foundation, the Carnegie Corporation, the Rockefeller Foundation, the Julius Rosenwald Fund, the Josiah Macy, Jr. Foundation, and the New York Foundation.

† Dean of medicine and later president of Leland Stanford University, ex-president of the American Medical Association and chairman of its Council on Medical Education and Hospitals, and Secretary of the Interior.

ticular groups or to enable people to pay the costs.

In all, the CCMC published 25 major staff reports and 15 "Miscellaneous Contributions"; * collaborating agencies published 33 additional reports.† In the aggregate these documents constituted a veritable library of medical economics.

Conclusions from the Staff Studies

The final staff volume ("The Costs of Medical Care," by I. S. Falk, C. Rufus Rorem, and Martha D. Ring, Publication No. 27) summarized the study findings in four general conclusions:

1. Medical service should be more largely furnished by groups of physicians and related practitioners, so organized as to maintain high standards of care and to retain the personal relations between patients and physician.

2. The costs of medical care should be distributed over groups of people and over periods of time.

3. Methods of preventing disease should be more extensively and more effectively applied, as measures both of service and economy, and should be so financed as to minimize the economic deterrents to their extension.

4. The facilities and services for medical care should be coordinated by appropriate agencies on a community basis.

Those conclusions were valid then, and I venture to say they would still be a sound if not a complete framework for exhortation today.

Committee Recommendations

The committee did not achieve unanimity in its recommendations. In the final report ("Medical Care for the American People," Publication No. 28), the majority submitted its program for constructive action in five basic recommendations which I summarize in the interest of brevity:

Recommendation 1—Comprehensive medical service should be provided largely by organized groups of practitioners, organized preferably around hospitals, encouraging high standards, and preserving personal relations.

Recommendation 2—All basic public health services should be extended to the entire population, requiring increased financial support, full-time trained health officers and staffs, with security of tenure.

Recommendation 3—Medical costs should be placed on a group payment basis through insurance, taxation, or both; individual fee-for-service should be available for those who prefer it; and cash benefits for wage loss should be kept separate.‡

Recommendation 4—State and local agencies should be formed to study, evaluate, and coordinate services, with special attention to urban-rural coordination.

Recommendation 5—Professional education should be improved for physicians, health officers, dentists, pharmacists, registered nurses, nursing aides, midwives, and hospital and clinic administrators.

These five were supplemented by many subrecommendations applicable to special circumstances and areas. That section of the Majority Report is still good reading today, as is the closing chapter appropriately titled, "The Challenge of the Future."

Minority Report No. 1 ** was in accord with the majority's recommendations for strengthening of public health services (No. 2), for coordination of medical services (No. 4), for basic educational improvements (No. 5), but it took sharp issue with the recommendations on organization of medical services (No. 1) and on group payment for medical service (No. 3). It submitted six

* All of the committee's reports were published by the University of Chicago Press.

† The American Medical Association, the American Dental Association, the Metropolitan Life Insurance Company, the National Bureau of Economic Research, the National Tuberculosis Association, the Milbank Memorial Fund, the Julius Rosenwald Fund, etc.

‡ Within the majority there were some who preferred voluntary insurance, others who favored compulsory insurance, and still others who thought experimentation should be encouraged along both lines.

** This Minority Report No. 1 was formally approved by the American Medical Association at the next meeting of the House of Delegates.

specific recommendations which I summarize as follows—

Recommendation 1—Government competition should be discontinued, restricting activities to the indigent, diseases requiring care in governmental institutions, public health, the Armed Forces, etc., and only service-connected veterans' cases (except tuberculosis and nervous and mental diseases).

Recommendation 2—Government care of the indigent should be expanded, ultimately relieving the medical profession of this burden.

Recommendation 3—The minority endorses the majority's recommendation (No. 4) on coordination of services.

Recommendation 4—Attempts should be made to restore the general practitioner to the central place in medical practice.

Recommendation 5—Corporate practice of medicine should be opposed as: wasteful, inimical to high quality, and unfair exploitation of the profession.

Recommendation 6—Careful trial should be given to payment methods that fit into present institutions and practices.

In Minority Report No. 2, two dentist members expressed their general accord with the main positions of the Majority Report, but joined with the minority in expressing various reservations, especially about group practice and the future position of the professional (dental) practitioner, and they endorsed medical care plans sponsored by professional societies.

In addition, there were two personal statements. In one, Walton H. Hamilton, an economist member, criticized the Majority Report for failures to go further—to make clean-cut recommendations for at least compulsory health insurance and for organization of comprehensive medical centers designed to take medicine out of the market place, to revive medical care as a more truly professional practice even though in an industrial and business society—for a return of medicine to the status of a public service. In the other, the late Edgar Sydenstricker, a public health member, recorded his opinion that the recommendations of the majority did not deal adequately with the fundamental economic question which the committee was formed primarily to study and consider.

The committee's five-year program of study and deliberation had been regarded as a notable experiment in the rational attack on an important social problem. But this did not spare the committee's reports from having a mixed and acrimonious reception, especially because the American Medical Association endorsed Minority Report No. 1 and condemned the proposals encouraging group practice and group payment. This was a fateful step which precipitated controversies destined to have profound influence on developments in the decades ahead.

1932–1957

There was a harsh irony in the picture. When the CCMC began its studies in 1927–1929 our economy was climbing to a high peak of prosperity. By the time it presented the final reports at the end of 1932 we were in the depths of depression. Gross national product had fallen from $104 billion a year in 1929 to $57 billion a year in late 1932; unemployment had risen from 1.6 million to 12.5 million—one-fourth of the civilian labor force was unemployed. Where before there had been troublesome deficiencies of medical care, now tens of millions lacked all the necessities of life including medical care. In the next two years, 1933–1934, drastic measures had to be taken to meet essential wants, including means of making health services available to individuals, families, communities, states—the nation. First there were emergency measures to arrange quickly for health services and to pay for them. Then in planning what is now the permanent Social Security program we explored the possibilities of introducing federally-aided state sys-

tems of health insurance. AMA opposition defeated this—but at the price of insuring the enactment in 1935 of Title VI of the Social Security Act which inaugurated the current federal grants to the states for public health services and the federal funds for a research program out of which the National Institutes of Health have burgeoned.

The next major step on the Washington scene came with the report of the (Interdepartmental) Technical Committee on Medical Care. At the National Health Conference of 1938 they presented a five-point National Health Program, proposing four categories of federal grants to states:

1. for general public health and maternal and child health services,
2. for construction of hospitals and health centers,
3. for medical care of needy and medically needy persons, and
4. general medical care programs through insurance, taxation, or both;

and a fifth category including (a) temporary disability insurance linked with unemployment insurance, and (b) permanent total disability insurance to be part of old age insurance.

At that conference all major sectors of our society were represented and all were heard. The nation listened closely to what was said there, and it was concerned. Medical care was no longer a subject for the expert alone; it was everybody's business. National health planning had become a national interest—the first step toward political stature and maturity. Legislation to enact the National Health Program was presented in the U. S. Senate the following year—the first Wagner health bill (1939), and there were extensive hearings under the chairmanship of Senator Murray. The bill died, but the needs persisted and continued to clamor for attention. In the next decade and a half all of the Technical Committee's recommendations except the general medical proposal were enacted—in greater or lesser measure and in one form or another—at federal or state levels, or both. And the proposals for compulsory insurance precipitated rapid growth of voluntary insurance.

These developments now invite review and evaluation against the CCMC recommendations, appraising progress in medical care against the backdrop of 25 years of history—the economic depression of the 1930's, the defense period, World War II, and the postwar years, and in perspective with the changes in our society indicated by growth of population from 125 million to over 170 million, of gross national product from $57 billion to $440 billion, and of medical care expenditures from less than $4 billion to $15 billion or more.

Our panel will present a more comprehensive—but in the time available still only a fragmentary—account and assessment of progress in the 25 years since November, 1932. All of us may then participate in searching out lessons of experience and in raising our sights for the future.

Dr. Falk is a private consultant, residing in Stonington, Conn.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

II. DEVELOPMENTS IN GROUP MEDICAL PRACTICE

C. Rufus Rorem, Ph.D., C.P.A., F.A.P.H.A.

SOME HAD supposed that group medical practice, the objective of the CCMC first major recommendation, would sweep the country—but this did not happen. However, it has developed persistently in the United States during the past 25 years, both as a type of organization and as an aspect of diagnosis and treatment. There is no single form of group practice. It is present wherever several physicians combine their knowledge and skill in service to individual patients.

For purposes of this summary of developments in the past 25 years group practice will be understood to have one or more of the following features: different specialized qualifications among the practitioners; contiguity of professional offices; regular and frequent consultations concerning individual patients; joint use of supplementary services; some joint ownership of equipment, apparatus, or buildings; contractual, rather than competitive, division of total income among the physicians.

Group practice is more a process than a form of organization. The central theme—a common interest in the patient—is always present, but the variations are numerous. Group practice may be intermittent, rather than continuous, as in the exchange of opinion during ward-rounds in a hospital; part time rather than full time, as in the sessions attended in a hospital outpatient department, or office appointments at a clinic serving contract patients; for diagnosis only, with treatment procedures becoming the responsibility of individual doctors; or limited to special groups, such as contract cases, referred cases, or persons of limited income.

The general hospital has been the natural center for the greatest development of group practice in America. Medical specialists spend a great deal of time there, and the hospitals provide not only specialized equipment for diagnosis and treatment, but also technical staff trained to use the facilities under medical supervision.

The following paragraphs emphasize the administrative characteristics of various forms of group practice—apart from these forms developed for the provision of free service in hospital outpatient departments.

Private Group Clinics—Individual practitioners representing several specialties work together in adjacent offices, most of them on a full-time basis. They usually rely upon local hospitals in the diagnosis and treatment of bed cases, but they may own and operate radiological and pathological laboratories and may perform minor surgical operations at the central offices. The physicians are in economic competition with other doctors, but not with each other.

The headquarters may be in office buildings or separate structures which are owned or rented. The doctors are usually organized in partnerships, but some corporations have been established for the ownership of property and the employment of the doctors. Ordinarily, the clinics are open to the general public for all types of service.

Private clinics tend to be located in the smaller cities and the medical personnel ranges from three to 300 individuals. The largest number have been organized west of the Mississippi River, in part through the influence of the Mayo Clinic at Rochester, Minn. The number of

such groups is variously estimated at from 300 to 500, depending on the standards used for the listing.

Full-Time Hospital Staffs—The outstanding example of this type of group practice is the Ford Hospital, established in 1915 at Detroit, Mich. Other significant examples are the Cleveland Clinic and Hospital, the Geisinger Hospital at Danville, Pa., and the University of Chicago Clinics. Such institutions are open to the general public for both general and specialized care and for referred and walk-in patients. The Pratt Diagnostic Clinic and New England Medical Center Hospital, Boston, Mass., limit the service almost exclusively to cases referred by other physicians.

Medical Groups Organized for Insured or Other Special Groups—A number of clinics have been established to serve special groups of the general public. These include the full-time staffs of industrial plants and the many private clinics in the Pacific Coast states which have contracts with employed firms to serve their employees and dependents.

Medical groups have been established in connection with consumers who have provided capital facilities on a cooperative basis with small contributions from each member eligible to medical service benefits. Examples are the Elk City Hospital in Oklahoma, the Labor Health Institute in St. Louis, and the Group Health Cooperatives in Seattle, Duluth, and the District of Columbia. Some of these clinics accept patients from the general public and some do not, and many of the practitioners are engaged on a part-time basis.

The Health Insurance Plan of Greater New York, organized in 1947, has aided in the establishment of some 30 medical groups, with a total of 1,200 physicians, to serve over 500,000 participants in a comprehensive prepayment program for prevention, diagnosis, treatment, and health education. HIP is one of the few organizations which began with a three-dimensional program, namely: group practice, group prepayment, and comprehensive service in the home, office, and hospital. The HIP medical groups also furnish treatment to the general public on an individual basis.

On the Pacific Coast a significant program has evolved from the group practice services developed for employees of the Kaiser industries during World War II. Approximately 600,000 workers and dependents in the San Francisco and Los Angeles areas are enrolled in the Kaiser Health Plan, a nonprofit group payment organization. Medical services are provided by several Permanente Clinics, composed of several hundred salaried physicians, who in turn comprise the staffs of Kaiser Foundation hospitals. Enrollment in the Kaiser Health Plan is open to the general public and not more than 10 per cent of the present participants are employed by the Kaiser industries.

The United Mine Workers have established complete group service for their 1,200,000 participants, by the construction of new hospitals in the soft-coal regions of Kentucky and West Virginia, and the operation of group clinics in these states and Pennsylvania. A similar program is in process of formation by the United Automobile Workers in Detroit.

During the past 10 years there has been accelerated development of labor health centers financed by specific trade unions, particularly in New York, Philadelphia, and Chicago. Especially active in this movement have been the garment workers, although medical centers for all types of unions have developed. Many of the physicians are engaged part-time and paid on a monthly, annual, or per session basis.

Diagnostic Clinics—These groups are usually limited by the character of service provided or the method in which cases are accepted. Examples are: the Vanderbilt Clinic in New York for diag-

nosis and treatment of patients of limited income; the Benjamin Franklin Clinic of the Pennsylvania Hospital for flat-rate diagnostic service to referred patients of any income level; the Private Outpatient Service of the Johns Hopkins Hospital, Baltimore; and the Boston Dispensary which provides home care, as well as office service.

As a general rule, diagnostic clinics have relied upon cases referred by doctors from outside the immediate private practice trading area. This form of organization tends to become a general service available to walk-in patients, or to remain a limited activity for the convenience of the member physicians, rather than the general profession and population.

Private Ambulatory Service at Hospitals—The most prevalent, but least spectacular, group practice is the intermittent or regular use by individual doctors of hospital personnel and facilities in diagnostic service for private patients. This may take the form of reference of a patient to the hospital for x-ray films, examination or treatment, for laboratory examinations, or for conference with various medical specialists. The doctor may utilize hospital consulting rooms on a regular or intermittent basis for conferences with his patients and the various members of the hospital staff.

This trend represents group practice a la carte. The solo doctor may carry it as far as he wishes, and when he wishes. The practice is growing rapidly. In total volume this work probably exceeds that of organized group practice by all full-time and part-time clinics throughout the country.

Physicians' Offices at Hospitals—A current trend in the coordination of medical services is the establishment of private physicians' offices in facilities owned by, or adjacent to, community hospitals. Upward of 200 nonteaching hospitals have made such arrangements in large and small cities in all parts of the United States. The result is a limited form of group practice through the sharing of many office expenses and increased reference work among the tenant-physicians.

The "Team" Concept and Regionalization—Medical service at hospitals has utilized some principles of professional coordination not ordinarily considered in discussions of group practice. One is the gradually increasing use of paramedical personnel in diagnosis and treatment, with different levels of professional competence being directed by a physician. This "team concept" includes appropriate use of specially trained nurses, medical technologists, physical therapists, even practical nurses and nurses' aides.

The other aspect is in the trend toward regionalization by which hospitals coordinate their entire programs by sharing facilities and medical staff services. Base hospitals are used for cases involving difficult problems of diagnosis and treatment, with less complex services being furnished at local community institutions.

Medical education has not given sustained attention to problems of coordinating physicians' services in diagnosis and treatment, although some universities have provided courses in administrative medicine through schools of public health or business administration.

A clinic may be established for any of a variety of reasons, such as the improvement of quality of medical care, the lowering of costs to patients, the increasing of income to physicians, the stabilization of working conditions for doctors, the training of subsidiary personnel, a demonstration of the advantages of coordinated practice, the freeing of physicians from direct concern with economic problems.

The sustaining motivation for physicians must be their personal self-interest, not social reform or demonstrations in

medical economics, or even the avoidance of socialized medicine.

Doctors with a genius for business organization are usually successful individual practitioners. Accordingly, they may see no financial advantage in group practice. Moreover, many of the values of group activity are available through hospital staff appointments.

An important area for the development of medical group practice is the gradual transformation of hospital outpatient departments into programs of general service to the entire public. Establishment of physicians' private offices at hospitals offers wide opportunities. Diagnostic or referral clinics have not developed widely in the United States and probably will never reach a large portion of the population.

Group medical practice is not merely an administrative device to increase quality, reduce costs, or to stabilize medical income. It is a "way of life" made possible by a series of revolutions in medical science. Specialized knowledge and skill require coordination in their application to prevention, diagnosis, and treatment.

Dr. Rorem is executive director, Hospital Council of Philadelphia, Philadelphia, Pa.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

III. HOSPITAL GROWTH AND CHANGES

Alden B. Mills

ONE OF the benchmark CCMC studies was "The Fundamentals of Good Medical Care" by Roger I. Lee, M.D., and Lewis W. Jones. It gave us for the first time a true quantitative basis for estimates of needs for hospital beds, physician care, nursing service, and other services. It is so important that I hope some agency will undertake the challenging task of keeping it continuously up to date.

Much of our planning for hospital growth has stemmed directly from the Lee-Jones ratios, which now most urgently need revision in the light of new drugs, other new scientific knowledge, early ambulation, and new economic influences.

During this 25-year period we have witnessed the most phenomenal growth in the number and bed capacity of hospitals in our nation's history. When the great depression receded, hospital building resumed—at first slowly but then with ever-increasing speed until halted abruptly by World War II. Even during the war, some hospitals were built in war swollen or war created communities in spite of scarcities of materials and labor. At the close of the war the pent-up needs burst forth and frenzied building has continued to now. Much of this—although by no means the major part—was stimulated by Hill-Burton and Wolverton subsidies. A recent summary of all Hill-Burton projects to date in-

dicates that federal aid of $903,000,000 has gone to 3,514 projects whose total cost is $2,875,000,000. These have added 153,000 beds and 888 health units for outpatient care, as well as some nurses homes, convalescent facilities, and rehabilitation centers. Two-thirds of the projects have been general hospitals, 18 per cent public health facilities, 3 per cent psychiatric, 2 per cent tuberculosis, three per cent chronic, and 6 per cent miscellaneous facilities. Of the 1,111 completely new general hospitals, 51 per cent have been in areas that formerly had no hospitals and 53 per cent have been in communities of less than 5,000 population. Whether so many very small hospitals are good or bad in terms of their effect on the quality of hospital and medical care is a subject worth detailed investigation.

To a limited extent—less than we might wish sometimes—the Hill-Burton Act has been a stimulus to better hospital planning, both from the broad social planning viewpoint and from the more limited architectural view. The extravagant standards used in Hill-Burton planning (in both senses) has been one limitation on our obtaining as much benefit in these areas as we might. With a great deal of experience now behind us, we may well do a more effective job in the next decade than we have in the past.

Hospital functions have changed markedly in the past quarter century as we have raced breathlessly along trying to keep abreast—or at least in sight of—the advances in medicine, the basic sciences, technology, and socioeconomic changes. There is not time to make anything like a complete recital, but merely as illustrative of various fields we might mention radioactive isotopes, home care programs, routine chest x-rays, cancer clinics, rehabilitation centers, programs for spastics, licensed vocational nurses, automatic laboratory glass-washing machines, and unionization in some places of hospital employees. Advances or changes in almost any field can affect hospitals.

I am not sure that anything in the CCMC studies or recommendations has any bearing on the next item in this inventory of changes, but I would be less than frank to omit it. I refer to the five, seven, or tenfold increase in hospital costs (measured in shrinking dollars) from 1932 to this date. The reasons for such increases are so well known by now that I shall attempt no defense.

The Minority Report No. 1 of the CCMC berated the "corporate practice of medicine" and thus foretold some of the difficulties that hospitals have encountered in meeting shibboleths and slogans about the "hospital practice of medicine." Our friends the radiologists (with some assistance from other specialists) have given us a bad time, but it does now appear that peace is returning gradually and we should be able to go forward with improving care to patients rather than calling each other names in courts of law.

The voluntary hospital could almost be renamed the "volunteer" hospital, so important have come to be the services of auxiliaries and volunteers in improving quality and extending services. More than one million women and a good many thousand men are now members of hospital auxiliaries in the United States and Canada. The contributed services of hospital trustees represents a further asset that is beyond any price.

Exciting as the changes have been in general hospitals, we appear to be already well into a revolution in psychiatric hospitals—governmental, voluntary, and proprietary—that promises to be even more dramatic. New drugs and treatments constitute a part of it, but a more important part is new insight, understanding, and warmth which are transforming many of these institutions. Better educated psychiatrists, psycholo-

gists, psychiatric nurses, and social workers have been provided in larger numbers because of increased public concern for the mentally ill. The labels "open door" and "therapeutic community" relate to concepts that excite all workers in this field even more than do the tranquillizing drugs—grateful as we are for them.

Progress in Staffing

To staff so many new and expanded hospitals has been far from easy. Most of us have had plenty of applicants for visiting staff positions (except in a few specialties) as nearly every doctor now wants at least one hospital appointment. But interns and residents have been scarce and we have opened our house staff doors to graduates from such countries as Guatemala, the Philippines, Germany, and Turkey. Even so the internships exceed the interns.

The shortage of nurses at all levels, and especially at the teaching and administrative level, is so chronic that it is no longer good conversational material. It has forced us to develop many subsidiary workers and to study constantly the nurse's job so as to relieve her of non-nursing functions. We still are attracting about the same percentage of all high school girl graduates into the nursing field, but the demand for nurses increased most sharply just when we were caught by the low birth rates of the depression. We probably never will catch up and will continue to elevate the nurse and use her as captain of a group or team.

We are also short of all the other paramedical personnel—dietitians, social workers (especially psychiatric social workers), medical record librarians, executive housekeepers, x-ray and laboratory technicians, and so on through the list.

The CCMC report touched lightly on the need for trained hospital administrators and here is one field where advances have been extensive and sustained, with 15 or more universities now providing such training at the graduate level and, on the whole, doing an excellent job.

One desirable result of personnel shortages has been to help expedite the reduction or elimination of racial barriers in hospitals. While progress on this front is not so rapid as many of us would like, it has been steady and far more rapid in the past decade than in any other period in our history. I have had the honor to be the administrator of four different hospitals. Before completing my administration, each of these hospitals dropped all racial segregation of patients or discrimination in the appointment of medical staff, nursing staff, or nursing students. Similar results are being achieved without fanfare or publicity in many areas of the country. Much yet remains to be done.

Adjustments to Prepayment

The major adjustment which hospitals have made to the great growth of prepayment plans has been that the economic lid has been partially pried off. Some of the results have been unfortunate, such as occasional overbuilding of hospitals, rare instances of "chiselling," and a rather general relaxation of the pressure for utmost economy. Far more important than these negative aspects, however, has been the widespread upgrading of hospital care in all hospitals and especially in those toward the bottom of the ladder. Prepayment beyond any doubt has been one of the most potent forces in improving quality of personnel, scope of services, and attractiveness and suitability of physical plants.

Nothing that I have said should be interpreted to mean that hospi-

tal administrators are not deeply concerned over the pressure on us for higher costs. Some of us have—regrettably, I think—turned this pressure against Blue Cross in an effort to force an abandonment of the service principle in favor of indemnity. Fortunately, most of our Blue Cross plans have stood firm.

Regionalization

Some years ago I suggested to Henry Southmayd that the Commonwealth Fund had done an excellent job of showing how a relatively small community hospital could do an outstanding job of providing high quality care when some extra money could be put into it for original construction, staffing, and continuous postgraduate education of its medical staff. I urged him to consider a broader program of regional integration of urban and rural hospitals. The Commonwealth Fund took up this idea and many of you are familiar with the good results of its program in the Rochester, N. Y., area.

When about 1938 we devoted a full issue of "Modern Hospital" to a comprehensive description of a single hospital, Salem Hospital in Salem, Mass., it was providing laboratory, x-ray, and some other services to two or three small neighboring hospitals. The "Boston and Maine" experience of Tufts Medical Group is stimulating and pregnant. The United Mine Workers and the Kaiser-Permanente Hospitals have experimented further with regionalization. New York University has offered some medical education opportunities to hospitals within 40 or 50 miles, including Mountainside Hospital, Montclair, N. J., where I was administrator for a period.

Regionalization seems so desirable in theory and so hopeful in the few instances in which it has been tried that one wonders why progress has been so halting. Perhaps it is a reflection of our great emphasis on local independence.

Public Interest, Attitudes, and Participation

Since 1932, the greatest revolution of all, as Dr. Falk has already mentioned, is that medical care, including hospital service, has become a public issue cussed and discussed in every forum of the land, the subject of long—if sometimes weak—planks in party platforms, and the object of public attention and beneficence on a scale never before known in our land. The CCMC studies, recommendations, and publicity did much to expedite this change. Truly the times were ripe for such a study.

During the depression and postdepression years we heard many people say that the days of the great fortunes were over and therefore hospitals could no longer look to philanthropy as a source of funds for new construction or new endowment. Since the close of World War II, philanthropy in general and toward hospitals in particular has expanded at an undreamed of pace. Foundations large and small have been very generous to hospitals, the phenomenal Ford Foundation gift being the largest, most dramatic and, in some ways, most significant gift in all the long and brilliant pages of American philanthropy. But, while there have been many generous gifts from wealthy individuals, these alone would have been utterly inadequate to meet the hospitals' needs for added capital. Fortunately, two other sources have grown rapidly, namely corporate gifts and gifts from small donors, including most notably the laboring man working through or in response to his unions, his Buck a Month Clubs, his Aid in Industry, and other devices. Philanthropy has been democratized, too.

The public has demonstrated its confidence in us to do a constantly improving job of providing health care. They have provided us, by and large, with

the necessary dollars and the necessary moral support. Can we in the next 25 years make as much progress toward fully meeting all the health needs of the nation as has been done in the quarter century just ended?

Mr. Mills is hospital consultant, Santa Monica, and administrator, Resthaven and Alhambra Sanatorium, Los Angeles, Calif.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

IV. GROUP PAYMENT SINCE THE COMMITTEE ON THE COSTS OF MEDICAL CARE

Louis S. Reed, Ph.D., F.A.P.H.A.

ONE OF the pleasures of participating in this panel discussion was that it made me take up and read through the final report of the Committee on the Costs of Medical Care—a volume that I have not looked into for some 15–20 years. It was a refreshing experience to read the recommendations of the committee in the light of all that has transpired in the past 25 years. I remember that as a staff member of the committee I was disappointed in the final report, thinking that it was too equivocal, that its recommendations fell short of what the situation demanded. It seems to me now that I was then overcritical, for certainly this report has vision. It looked far ahead and those who wrote it and those who signed it recommended changes that were far reaching indeed.

CCMC Recommendations on Group Payment

As Dr. Falk has indicated the major recommendation of the majority of the committee with respect to payment for medical care was that "the cost of medical care be placed on a group payment basis, through the use of insurance, through the use of taxation, or through the use of both of these methods." The majority recommended a wide development of voluntary cooperative health insurance. It was thought that such insurance should be developed primarily by organized groups of consumers, i.e., industrial, fraternal, educational, or other reasonably cohesive groups, and that the initiative in the development of voluntary health insurance should come from those to be served.

The majority group thought that under voluntary health insurance it would be found that "a part of the people because of their low incomes cannot pay, even on a periodic basis, the full cost of complete service" and it therefore recommended that communities should use tax funds to supplement the payments of low-income families—in other words to subsidize insurance for these groups. For communities with low per capita incomes, where local tax funds would be insufficient for this pur-

pose, state aid was recommended; indeed, it was suggested that the resources of the federal government might be needed to assist the poorer states in bringing medical care to their populations.

The majority observed that families with low or irregular incomes cannot usually be covered by voluntary insurance and that for these reasons voluntary insurance had been succeeded by compulsory insurance in most of western Europe. It gave consideration therefore to whether participation in insurance should be required for at least certain groups of the population. As Dr. Falk has indicated a minority of the majority believed that legally required health insurance would eventually be necessary and that it was unnecessary, and perhaps undesirable, to encourage a voluntary system; and still others believed that both types of plans, or a combination of the two, should be equally recommended. The majority of the signers of the Majority Report, however, believed that it would be undesirable at the outset to establish compulsory insurance, and that while such a system might eventually be necessary, voluntary insurance was in any case a necessary and desirable first stage.

The majority hoped and recommended that health insurance would develop on a comprehensive basis with services provided through organized medical groups. In the absence of comprehensive programs, it also recommended the development of insurance limited to hospital care and physicians' services in the hospital and specified that "if there is more than one hospital in a community it will frequently be desirable for all the hospitals to enter a cooperative hospital insurance plan."

The signers of the Minority Report—eight of the nine were physicians—were unenthusiastic about group payment. They said that if there was to be group payment it should be developed on a basis such that all the physicians in a community could participate in it and where it would be under the supervision of state or local medical societies.

Prepayment Developments in the Past 25 Years in the Light of the Committee Recommendations

In the 25 years since the committee's report we have had a tremendous development of voluntary health insurance in this country. It has been a development rich with diversified types of plans and programs. In one form or another it has now reached some 116 million people—about two-thirds of our population.

It is quite apparent that this development has in large measure not been along the lines recommended by either the majority or minority groups, although in some respects, notably the development of insurance on a basis such that all hospitals and all physicians in the community could participate, it has been closer to the desires and hopes of the minority than of the majority group.

There has been relatively little development—at least in proportion to the total—of insurance providing service through organized medical groups, very little insurance which has provided comprehensive health services, and on the whole very little insurance in which consumer groups have taken the initiative. Only in the last few years have programs sponsored by labor unions assumed importance. Contrary to the hopes and recommendations of the committee, our voluntary insurance has been developed largely by organizations representing the producers or providers of medical care, namely, hospitals and the medical profession and by insurance companies.

It is of interest to note that neither the majority nor minority groups of the committee thought that insurance com-

panies could play a useful role in providing health insurance. In fact, the committee believed that the "participation by commercial insurance companies in the forms of insurance against the costs of medical care which are recommended in this report would . . . tend to increase the costs and not to improve the quality of service." (p. 50).

It is noteworthy that contrary to the thoughts and recommendations of the committee there has been no development of governmental subsidies of health insurance.

Assessment of Developments

In noting these developments it is natural to compare them with the goal that the committee had in mind, namely, adequate medical care for the American people and to see to what extent the achievements approach that goal. In the field of group payment it is obvious that the goal envisioned by the committee has not been achieved. In the main, the costs of medical care are not on a group payment basis. Though two-thirds of the population have some form of insurance coverage, only about 25 per cent of all consumer expenditures for medical care now take place through insurance.

The insurance that has developed has not been comprehensive, but has largely been limited to hospitalization and physicians' services in the hospital.

A sizable portion of the population has no insurance coverage whatever, and this part of the population tends to include a disproportionate number of those with low incomes and of the aged, groups whose needs are especially great.

A sizable segment of all health insurance is provided by insurance companies on an individual basis, a form of insurance under which approximately half of what is paid in premiums goes to selling costs and overhead and not to the provision of health services.

It was the committee's hope that through group practice there would be economy in the provision of care and assurance of high quality of service. The health insurance that we have has developed on a free choice basis, has had very little influence on the quality of medical services, and in some respects, may have had an adverse effect on economy in the provision of service.

I believe we are now beginning to realize that health insurance as a financial arrangement for merely paying the costs of care or for spreading the risk of illness expense is quite capable of resulting in much waste of the public's money. If doctors are free to charge what they want under health insurance, their charges may go to excessively high levels. Health insurance increases the ability of consumers to pay for medical care and medical fees are based partly on the patient's ability to pay. Thus health insurance may put the public at a disadvantage unless there are, so to speak, collective agreements between the insured and those providing service as to fair charges for services.

Under our present health insurance there is no effective control or supervision over hospital costs. A larger and larger proportion of all hospital patients have their bills paid under insurance. Such insurance, if it is to be comprehensive, must pay hospitals their full costs of operation. But it should pay them their fair costs and not whatever it costs them to operate. At present hospitals are responsible to no one for keeping their costs at reasonable levels and for operating effectively and economically.

Effect of Committee's Recommendations

Certainly one effect of the committee's recommendations was to encourage the development of voluntary insurance.

At the time the report was issued a few experiments in hospital insurance had already developed, and hospitals were becoming interested in the possibilities of hospital insurance. The committee's endorsement of voluntary insurance undoubtedly encouraged hospitals in various communities to develop hospital service plans of the type that later became Blue Cross plans. One member of the staff of the committee, namely C. Rufus Rorem, helped personally in the development of these programs. Undoubtedly the Blue Cross development would have taken place without him, but providence must work through individuals and Rorem was an instrument at hand.

Conclusion

As one reviews the developments of these 25 years against the background of the committee's report one cannot help but admire the vision and courage of the individuals who comprised the committee. The committee's final report was bold and forward looking.

Also the thought comes that there is need now for another such committee or commission on medical care. The problem of adequate medical care for the American people is still unsolved. Is there not need now for some new private or governmental group to look at medical care again, to point out the goal, and what must be done to achieve that goal?

Dr. Reed is associate professor of medical economics, Sloan Institute of Hospital Administration, Cornell University, Ithaca, N. Y.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

V. GROWTH OF PUBLIC SERVICES SINCE 1932

Nathan Sinai, Dr.P.H., F.A.P.H.A.

WHAT IS being said by the panel relates to a strategy, a grand strategy, to solve the health problems of a nation. Within the framework of the strategy there are three major components and on each of these the CCMC expressed itself and made recommendations. The first component involves action to increase and improve health personnel and health facilities; the second, action to make the personnel and facilities available and accessible to the people; the third, action to create a reasonable demand for what is available and accessible.

It would be pretentious to attribute all progress since 1932 to the work and the deliberations of the committtee. But it would be an oversight approaching blindness if the committee were not credited with its greatest contribution. This was to give form, much tangible substance, and a major impulse to the broad social movement that has developed since 1932. To those in a position to review the events of 25 years, the picture of rapid and intensive action is breath-taking. To cite only a single index of change and growth: governmental expenditures for health and medical

services—federal, state, and local—increased from $0.5 billion when the CCMC began to about $5 billion now!

Expansion of Public Health Services

The committee had much to say about the need for a greater professional and political stability in the field of public health. To be sure, the references were to a rather restricted public health, the public health of the 1920's. Nevertheless, it was a public health related to the total health needs, a public health that contained the elements of growth.

Within less than five years public health began to break out of its restrictive boundaries. Under the drive of two almost overwhelming federal appropriations—$10 millions to be expended through the Public Health Service and the same amount through the Children's Bureau—the process of extension began. One of the immediate impacts was on the schools of public health. Quick adjustments to the new influences became necessary; the older patterns of training needed to be adjusted to a public health with a future. It was the future that offered the most exciting prospects to the new "recruits."

From the vantage point of 1957 the process of expansion since 1932 is also observable. Those with imagination, vision, and drive, pressing against the periphery of public health, expanded the boundaries into new areas. The new areas brought new programs—attacks on cancer and chronic diseases, the planning of hospital facilities, the licensing of nursing homes. These and others became parts of the strategy of action to make available and accessible the benefits of science.

Development of Public Medical Care

Equally dramatic has been the rise of public medical service. Here, too, the committee had made studies and recommendations. The studies illuminated the dark areas of medical care, throwing a strong light on the nature of the problems and their weight. Above all, the studies showed the continuing character of public medical service and the committee made recommendations calling for consistent and continuing programs.

Today public medical care presents one of the most intensive areas of action. In 1932 public medical care was everybody's emergency concern, but nobody's continuing responsibility. By 1957 the responsibilities for action have begun to focus. A shift has taken place from the question: whose function?, to the question, how may the problems be solved by the concerted action of the nation, the states, and the local communities? Once again the components of the grand strategy come into play and here, too, the health workers in public medical care are pressing against new and expanded boundaries that embrace general medical services, the services for specified groups of people, and the services of rehabilitation.

Professional Personnel

Throughout its recommendations the committee emphasized professional education. The 25 years have seen the growth of training in subject matter and in numbers of students. More physicians, dentists, nurses, and other health personnel are being trained. In this there is gratification, but the pressure to meet the demands and needs for still more persists.

Coordination of Services

The growth in the number and complexity of health services and the multiplicity of unrelated agencies and efforts give sharper point to one of the recommendations made by the committee. The recommendation urges "coordination"

and on this one there was no disagreement expressed in the minority reports or statements. All favored coordination; to oppose it would have meant an endorsement of chaos.

Coordination is an old subject. Almost a half century ago the "Committee of 1000," under Professor Irving Fisher of Yale, disturbed by the growth of independent governmental health activities, adapted a strong resolution urging coordination. Multiplication continued and diffusion grew. The CCMC stressed coordination and offered a design to achieve it. Multiplication has continued and diffusion has grown.

Coordination means "to regulate and combine in harmonious action." In the great majority of attempts to coordinate the almost exclusive emphasis is on harmony and the results are harmony on Sunday and uncoordination-as-usual the rest of the week. Too little attention is given to the regulatory sources of coordination, these being legislation, financial control, and the pressure of public demand. In the few instances of coordination, such as in hospital planning and construction, all three of the sources play their roles.

Despite the committee's design for coordination, the community with an effective plan of coordination is a rarity. Is this a matter that should engage the attention of the American Public Health Association and the official federal, state, and local health agencies? Are these agencies the ones upon whom the responsibility to "regulate and combine in harmonious action" should be assigned? Is this at least a part of what is meant when the American Public Health Association asks, "Are we getting public health in tune with the times?"

Dr. Sinai is professor of public health, University of Michigan, Ann Arbor, Mich.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

VI. 25 YEARS OF RESEARCH IN MEDICAL ECONOMICS

Margaret C. Klem, F.A.P.H.A.

I HAVE BEEN asked to discuss what has happened in medical economic research since the CCMC report. Because of the many areas to be covered I am limiting myself for the most part to studies of a national or regional scope. I regret that time does not permit me to mention many excellent and important studies that many in the Medical Care Section have made. I am happy that a volume containing some of them will be available soon.[1]

First, I want to mention the series of reports prepared by Selwyn Collins in the first 10 years after the CCMC based on the material collected in what we called the family cost of illness survey.[2] He gave continuing consultation to the committee staff and for years this series of reports was the main basis for national estimates on illness rates and demands for medical services of all types in relation to such factors as diagnosis, age and sex of patient, number in the

family, and size of community of residence.[3]

Next, for those of you who have become interested in medical economics more recently, I would like to recommend a report on the costs of adequate care prepared by the late Samuel Bradbury.[4] He took the Lee-Jones estimates[5] of the amount of care needed by the population and priced them at prevailing rates. Nothing similar to these two reports has been prepared since, so far as I know. If you are not acquainted with them you will find them of interest.

The final report of the committee came out during the depression. Because of the availability of federal funds through FERA and WPA and the desire to use the skills of unemployed trained personnel, studies were stimulated by state and local governmental agencies in many fields, including health and medical care. The most extensive in the health field was the National Health Survey made by the Public Health Service. This gave us national figures on disabling conditions not hitherto available. Other studies made by the Service during this period investigated the relationship between changes in income and standards of living and sickness and medical care among families of wage earners.[6] An idea of the wide range and sponsorship of the other health and medical care studies made during the depression with federal financial assistance can be obtained from the complete annotated list of such projects.[7]

For many years before the publication of the CCMC studies, the Bureau of Labor Statistics of the Department of Labor and the Bureau of Home Economics of the Department of Agriculture had been making detailed studies of family income and expenditures. During the depression through the use of WPA funds they were able jointly to make an extensive study in this area which gave expenditures for medical care in considerable detail in relation to various socioeconomic factors.[8]

Also, during the same period these basic data were used for two reports on consumer income and expenditures prepared by the National Resources Committee. In these reports medical care expenditures on a national scale could be seen in relation to other expenditures made by families in the several income groups.[9] About five years later Dorothy Brady with others from the Bureau of Labor Statistics and the Bureau of Home Economics made a nation-wide study of family spending and saving in wartime.[10]

During the five year period 1938–1943 Selwyn Collins, in cooperation with the Milbank Memorial Fund and the Johns Hopkins School of Hygiene and Public Health, made the well known study of illness among families in the Eastern Health District of Baltimore. The results of the study appeared in Public Health Reports and in the Milbank Memorial Fund Quarterly from January, 1940–January, 1954.[11]

In the early 1940's Joseph W. Mountin, Elliott Pennell, and others studied the location and movement of physicians and nurses in relation to size and per capita income of community, while Tony Ciocco and Isidore Altman reported on the patient load of physicians in private practice.[12] At the same time, they and many others were reporting on the change in the number of active dentists in relation to the size of the civilian population and their distribution by type of specialty and size of community.[13]

For many years the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce has reported on the income of various professional groups, including physicians, dentists, and nurses, and has published each year in the "Survey of Current Business" estimated annual national expenditures for various items of medical care.[14]

Those who do not wish to consult all these earlier studies will find much of the material summarized in the report of the Technical Committee of the Inter-Departmental Committee to Coordinate Health and Welfare Activities published in 1939.[15] A later report by Mott and Roemer brings together data from major medical care studies completed up to 1946 for both the urban and the rural population.[16]

Although a few experiments in voluntary insurance were studied by the CCMC, the movement did not begin to grow with any vitality until about 1937. This is the time when C. Rufus Rorem was appointed secretary of the Commission on Hospital Service, later to become the Blue Cross Commission. A few years later the Blue Shield plans began to be formed. The development of these plans, as well as prepayment plans of older types sponsored by physicians, consumers, or industry were studied and reported upon by the Bureau of Research and Statistics of the Social Security Administration under Dr. Falk's direction.[17] These reports which have been expanded and which now serve as the major source of national data on independent prepayment plans are being prepared on an annual basis by Agnes Brewster.[18] Also, the rural health cooperatives were studied and reported upon by Helen Johnston and others; while under the inspiring influence of Elin Anderson, many of these and other aspects of rural health were studied.[19]

During the period of initial development of Blue Cross and Blue Shield plans, Dean and Katherine Clark visited various types of prepayment medical care organizations, studying their organizational patterns and administrative procedures and reporting on their findings.[20] Franz Goldmann also studied many types of prepayment plans and published his findings in numerous articles and in a book on voluntary health insurance.[21] A little later Louis Reed's book on Blue Cross hospital plans, the most extensive report on the subject up to that time, was published.[22]

In 1946 the Council on Medical Service of the AMA started to publish an annual report on each prepayment medical care plan approved by the state medical societies,[23] and in December, 1947, the Health Insurance Council began to publish an annual report on coverage and later also on amounts of benefits paid out by the major types of insurance groups.[24]

During World War II Keith Rowe of the Bureau of Labor Statistics began a series of studies that measured workers' coverage in health insurance and pension plans under collective bargaining agreements. The latest publication of the bureau in this field contains a detailed statistical analysis of the various provisions of health and insurance programs so obtained.[25] At the same time Beatrice Brower, Helen Baker, and Dorothy Dahl were studying various types of group coverage in industry and in selected unions.[26]

Throughout the period under consideration the House and Senate of the United States Congress held numerous hearings on legislation dealing with voluntary and compulsory health insurance, medical personnel, and facilities. These hearings contain a wealth of information from major health agencies, much of it not published elsewhere.[27] In addition, there were the studies of health insurance made by Leslie Falk and others under the auspices of the Pepper Committee,[28] and the Dean Clark report made for the Senate Committee on Labor and Public Welfare.[29]

Various bibliographies and source books show the wide range of governmental and nongovernmental studies, published during the years since the CCMC reports, on various aspects of voluntary health insurance, including services provided, population groups covered, costs, personnel, administration,

needed expansion, and quality of care.[30]

Program operations under the Social Security Act of 1935 provided opportunities to learn about medical care provided to recipients of Old Age Assistance, Aid to the Blind, and Aid to Dependent Children. At the federal level these studies under the direction of Anne E. Geddes made available for the first time regional and state comparisons of expenditures for medical care for welfare recipients and provided data on the composition of the medical bill.[31] Many state and local governments also analyzed these costs and Goldmann included their findings in his comprehensive book on the subject.[32]

The reports of the Subcommittee on Medical Care of the Committee on Administrative Practice of the APHA must be mentioned,[33] as well as the series of reports made for the New York Academy of Medicine on various aspects of health and medical services.[34] At about the same time, late in the 1940's, the Academy of Pediatrics and two federal agencies made extensive studies of the provision of care to children and other members of their families in various sections of the United States.[35] Attention also should be called to the work of Hoffer and Schuler in developing a new approach to the measurement of health needs[36] and to the report of the National Health Assembly held at this time.[37]

At various periods during these years the Hagerstown health studies were continued.[38] As a forerunner to the extensive development of the UMW health program, an extensive survey was made of the bituminous coal industry, popularly referred to as the Boone report.[39]

World War II with Selective Service data on reasons for rejections gave us detailed national information on the health status of the personnel in the Armed Forces.[40] Because of the war, we also had the EMIC medical program for the wives and children of the men in the Armed Services. A detailed report on this program and the lessons in administration that it provided was prepared in 1948 by Sinai and Anderson.[41]

Reference must be made to the many Canadian studies, especially the continuing series of reports on voluntary and governmental health insurance, on health and medical services purchased, and family expenditures for care published by the Research and Statistics Division of the Department of National Health and Welfare of Canada under the direction of Joseph W. Willard.[42] I must also mention the series of reports on the Windsor Ontario Medical Program made by Sinai and the group working with him at Ann Arbor [43] and the studies of the Saskatchewan experience in prepaying for hospital care.[44] The Hospital Survey and Construction Act gave us much needed information on a national basis relating to hospitals and hospital service areas.[45]

The 1950's have seen the publication of several important national reports, such as that of the Commission on Financing Hospital Care,[46] the reports of the President's Commission on the Health Needs of the Nation,[47] and the Health Manpower Source Book.[48] The January, 1951, issue of the "Annals of the American Academy of Political and Social Science," [49] edited by Leavell and Goldmann, contains excellent papers on many aspects of the medical economics picture at that time and indicates the increasingly important place that union and management health programs occupy.

One of the most important recent studies, even though it relates to only one city, is that which compares the illness rates and services provided under prepayment arrangement by the Health Insurance Plan of Greater New York with the experience of a cross-section of the city population.[50]

The National Health Survey recently initiated by the Public Health Service

represents another major accomplishment. For years George Perrott, Selwyn Collins, Ted Woolsey, and others have dreamed of this study. Now it is under way, and for the first time in this country we shall have a continuing report on the health status of the nation. Recognition should be given to the Bureau of the Census, which along with Lester Breslow, did the pioneering work on the California pilot study for the National Survey.

One major change since the days of the CCMC is the availability of several organizations with full-time, well trained staffs who can assist with the planning of studies, the collection and tabulation of data, and the analysis of results. Among them are the U. S. Bureau of the Census, the National Opinion Research Center of the University of Chicago, and the Survey Research Center of the University of Michigan.

A new trend seen in many of the more recent studies is the attention being paid to the attitude of the patient for whom the services are made available, as well as the extent of understanding that exists between the patient and those who serve him.[51] Especially since the war the social scientists have been working in the health and medical care field and the numbers so engaged are increasing.[52]

I have left until last mention of the study that has more closely than any other repeated one of the CCMC studies and given us current data on family costs of medical care. I am referring to Odin Anderson's study, financed by the Health Information Foundation.[53] In view of the importance that health insurance has attained in the last 25 years, this new study relates family expenditures for medical care to the insurance protection owned by the family.

I want to close with special mention of Joseph W. Mountin and Michael Davis, both of whom over the years needled us to try new approaches, to look more closely at what was going on, to be more aware of the need for new services and the ways in which old ones could be improved. Without their constant encouragement, suggestions, advice, and guidance much of what has been accomplished in the last 25 years never would have been undertaken.

REFERENCES

1. Committee on Medical Care Teaching of the Association of Teachers of Preventive Medicine. Readings in Medical Care. Chapel Hill, N. C.: University of North Carolina Press, 1958.
2. Falk, I. S.; Klem, Margaret C.; and Sinai, Nathan. The Incidence of Illness and the Receipt and Costs of Medical Care Among Representative Family Groups (CCMC) Chicago, Ill.: University of Chicago Press, 1933.
3. Collins, Selwyn D. The Incidence of Illness and the Volume of Medical Services Among 9,000 Canvassed Families. For list of papers see Pub. Health Rep. (Oct. 30), 1942.
4. Bradbury, Samuel. Costs of Adequate Medical Care. Chicago, Ill.: University of Chicago Press, 1937.
5. Lee, Roger I., and Jones, Lewis Webster. Fundamentals of Good Medical Care. (CCMC) Chicago, Ill.: University of Chicago Press, 1933.
6. The National Health Survey, 1935–36. Part I: Scope and Method; Part II: Annotated Bibliography, 1936–50. PHS Pub. No. 85. Washington, D. C.: Gov. Ptg. Office, 1951.

   Perrott, George St. J., and Collins, Selwyn D. Relation of Sickness to Income and Income Change in 10 Surveyed Communities. Pub. Health Rep. (May 3), 1935.
7. W.P.A. Index of Research Projects, 3 Vol. Works Progress Administration, Harry L. Hopkins, Administrator, Corrington Gill, Assistant Administrator. Washington, D. C.: Gov. Ptg. Office, 1938–39.
8. Hollingsworth, Helen, et al. Family Expenditures for Medical Care. Five Regions, Urban, Village, Farm, Consumer Purchases Study. Miscellaneous Publ. No. 402. Washington: U. S. Dept. Agric., 1941.

   U. S. Department of Labor, Bureau of Labor Statistics. Study of Consumer Purchases. Urban Technical Series, Family Expenditures in Selected Cities, 1935–36, Vol. 5, Medical Care, Bull. 648. Washington, D. C.: Gov. Ptg. Office, 1940.
9. National Resources Committee. Consumer Incomes in the U. S., 1935–36, and Consumer Expenditures in the U. S., 1935–36. Washington, D. C.: Gov. Ptg. Office, 1938 and 1939.
10. Bureau of Labor Statistics. Family Spending and Saving in Wartime, 1945.
11. Collins, Selwyn D.; Phillips, F. Ruth; and Oliver, Dorothy S. Age Incidence of Specific Causes of Illness Found in Monthly Canvasses of Families. Sample of the Eastern Health District of Baltimore, 1938–43. Pub. Health Rep. (Sept. 28), 1951.

    ———. Disabling Illness from Specific Causes Among Males and Females of Various Ages. Sample of White Families Canvassed at Monthly Intervals in the Eastern Health District of Baltimore, 1938–43. Ibid. (Dec. 14), 1951.

    Downes, Jean. Method of Statistical Analysis of Chronic Disease in a Longitudinal Study of Illness. Milbank Mem. Fund Quart. (Oct.), 1951.

———. The Longitudinal Study of Families as a Method of Research. Ibid. (Apr.), 1952.

12. Mountin, Joseph W., Pennell, Elliott H.; and Nicolay, Virginia. Location and Movement of Physicians, 1923 and 1938—Effect of Local Factors Upon Location. Pub. Health Rep. (Dec. 18), 1942.

———. Location and Movement of Physicians, 1923 and 1938—Age Distribution in Relation to County Characteristics. Ibid. (Mar. 19), 1943.

Mountin, Joseph W., Pennell, Elliott H., and Brockett, Georgie S. Location and Movement of Physicians, 1923 and 1938—Changes in Urban and Rural Totals for Established Physicians. Ibid. (Feb. 16), 1945.

Ciocco, Antonio, and Altman, Isidore. The Patient Load of Physicians in Private Practice. Ibid. (Sept. 3), 1943.

———. Changes in the Number and Patient Load of Physicians Practicing in Washington, 1942–1945. M. Ann. District of Columbia (May), 1945.

———. Statistics on the Patient Load of Physicians in Private Practice. J.A.M.A. (Feb. 13), 1943.

Mountin, Joseph W.; Pennell, Elliott H.; and Berger, Anne G. Health Service Areas; Estimates of Future Physician Requirements. Pub. Health Bull. 305, 1949.

Mountin, Joseph W.; Pennell, Elliott H.; and Hoge, Vane M. Health Service Areas. Ibid. 292 1945.

Dickinson, Frank G. Supply of Physicians' Services. American Medical Association, Bureau of Medical Economic Research Bull. 81, Chicago, Ill., 1951.

Dickinson, Frank G.; and Bradley, Charles E.; in cooperation with Cargill, Frank V. Comparisons of State Physician-Population Ratios for 1938 and 1949. American Medical Association, Bureau of Medical Economic Research Bull. 78, Chicago, Ill., 1950.

American Nurses' Association. Facts about Nursing: a Statistical Summary. New York, N. Y.: The Association. Various editions.

Pennell, Elliott H. Location and Movement of Physicians—Methods for Estimating Physician Resources. Pub. Health Rep. (Mar. 3), 1944.

13. Mountin, Joseph W.; Pennell, Elliott, H.; and Brockett, Georgie S. Trends in Dentist-Population Ratios. Ibid. (Nov. 22), 1946.

Walls, Raymond M.; Lewis, Samuel R.; and Dollar, Melvin L. A Study of the Dental Needs of Adults in the United States, 1940. Chicago, Ill.: American Dental Association.

Beck, Dorothy Fahs. Costs of Dental Care for Adults Under Specific Clinical Conditions, 1943. Chicago, Ill.: American College of Dentists.

Klein, Henry. Dental Needs Versus Dental Manpower. J. Am. Dent. A. (Feb. 1), 1944.

Morrey, Lon W. Dental Personnel. Ibid. (Feb. 1), 1945.

Strusser, Harry. Dental Problems in Postwar Planning. Ibid. (Aug. 1), 1945.

Horner, Harlan H. Dental Education and Dental Personnel. Ibid. (July 1), 1946.

14. Denison, Edward F. Incomes in Selected Professions. Part 3, Private Duty Nursing. Survey of Current Business (Sept.), 1943.

Denison, Edward F., and Slater, Alvin. Incomes in Selected Professions. Part 4, Medical Service. Ibid. (Oct.), 1943.

Denison, Edward F. Incomes in Selected Professions. Part 5, Dentistry. Ibid. (Apr.), 1944.

U. S. Department of Commerce. Personal Consumption Expenditures by Type of Product, Table 30. Ibid. July Issues.

15. Interdepartmental Committee to Coordinate Health and Welfare Activities. The Nation's Health. Washington, D. C.: Gov. Ptg. Office, 1939.

16. Mott, Frederick D., and Roemer, Milton I. Rural Health and Medical Care. New York, N. Y.: McGraw-Hill, 1948.

17. Klem, Margaret C. Prepayment Medical Care Organizations, Bureau Memorandum No. 55 (1st, 2nd, 3rd eds.). Bureau of Research and Statistics, Social Security Administration, Washington, D. C., 1943, 1944, 1945.

18. Brewster, Agnes W. Social Security Bull. (Dec.), 1957, and previous December issues.

19. Reid, E. B.; and Johnston, Helen E.; et al. Cooperative Health Articles. Reprinted from the News for Farmer Cooperatives Series 1, Washington, D. C.: U. S. Farm Credit Administration (June), 1947.

Johnston, Helen E. Cooperation for Rural Health. Washington, D. C.: U. S. Farm Credit Administration, Miscellaneous Rep. 123, 1948.

———. Rural Health Cooperatives. PHS Bull. 308. Washington, D. C.: Gov. Ptg. Office, 1950.

Ziegler, Mark; Weinerman, E. Richard; and Roemer, Milton I. Rural Prepayment Medical Care Plans and Public Health Agencies. A.J.P.H. (Dec.), 1947.

Anderson, Elin L. The Extension Service's Responsibility in Aiding Rural People to Improve Their Health and Medical Services. Washington, D. C.: U. S. Extension Service, 1947.

———. Health Services Build Better Health. J. Home Economics (Oct.), 1950.

———. Adequate Medical Care for Rural Families. Ibid. (Sept.), 1944.

———. Rural Health and Social Policy. Private Printing. Chevy Chase, Md., 1951.

Farm Foundation. Medical Care and Health Services for Rural People. Study prepared as result of Conference, April 11–13, 1944. Chicago, Ill., 1944.

Hubbard, John P.; Pennell, Maryland Y.; and Britten, Rollo W. Health Services for the Rural Child. Reprinted, with additions, from J.A.M.A., 1948.

Cooperative Health Federation of America. The Cooperative Health Federation of America and its Member Plans. Chicago, Ill.: The Federation, 1951.

Mott, Frederick D. A Public Health Program for Rural Areas. Pub. Health Rep. (Apr. 26), 1946.

Ogden, Jean and Jess. Small Communities in Action. New York, N. Y.: Harper, 1946.

American Medical Association, Committee on Rural Medical Service. Extension of Rural Medical Service. Chicago, Ill.: The Association, 1949.

National Conference on Rural Health; First Annual Meeting, March 30, 1946. J.A.M.A. (June 8), 1946 (and subsequent annual meetings).

20. Clark, Dean A., and Clark Katherine G. Organization and Administration of Group Medical Practice. Joint Committee of the Twentieth Century Fund and the Good Will Fund; and Medical Administration Service, Inc. Camden, N. J.: Haddon Craftsmen, Inc., 1941.

21. Goldmann, Franz. Voluntary Medical Care Insurance in the United States. New York, N. Y.: Columbia University Press, 1948.

22. Reed, Louis S. Blue Cross and Medical Service Plans. Washington, D. C.: Gov. Ptg. Office (Oct.), 1947, 323 pp.

23. Council on Medical Service, AMA. Voluntary Prepayment Medical Care Plans. Chicago, Ill.: The Association, 1946 and following years.

24. Health Insurance Council: The Extent of Voluntary Health Insurance Coverage in the United States. New York, N. Y.: The Council, 1957 and previous years.

25. Rowe, Evan Keith, and Greene, Dorothy Kittner. Analysis of Health and Insurance Plans Under Collective Bargaining, late 1955. Bull. No. 1221. Washington, D. C.: Bureau of Labor Statistics, U. S. Department of Labor, 1957.

26. Brower, F. Beatrice. Company Group Insurance Plans, 1954. (National Industrial Conference Board Studies in Personnel Policy No. 70).

Baker, Helen, and Dahl, Dorothy. Group Health Insurance and Sickness Benefit Plans in Collective Bargaining. Princeton University, 1954.

27. Davis, Michael M. Medical Care for Tomorrow New York, N. Y.: Harper, 1955 for complete references.

Brewster, Agnes W. Health Insurance and Related Proposals for Financing Personal Health Services—A Digest of Major Legislation and Proposals for Federal Action, 1935–1957. Washington, D. C., Gov. Ptg. Office, 1958 (includes a chronological list of Congressional hearings and Senate committee reports relating to prepaid medical care, and special Presidential messages relating to health care).

28. U. S. Congress. Senate. Subcommittee on Wartime Health and Education. The Experimental Health Program of the United States Department of Agriculture. Subcommittee Monograph 1. 79th Congress, 2nd Session. Washington, D. C.: Gov. Ptg. Office, 1946.

29. U. S. Senate Committee on Labor and Public Welfare. Health Insurance Plans in the United States. Part 1, Summary of Findings and Recommendations; Part 2, Appendices; Part 3, Activities of Government in the Field of Health Services. Washington, D. C.: Gov. Ptg. Office, 1951.

30. Hollingsworth, Helen, and Klem, Margaret C. Selected Bibliography on Medical Economics. Social Security Board, Bureau of Research and Statistics Memorandum No. 60. Washington, D. C.: Gov. Ptg. Office (Nov.), 1944.

Hollingsworth, Helen; Klem, Margaret C.; and Baney, Anna Mae. Medical Care and Costs in Relation to Family Income: A Statistical Source Book. Social Security Administration. Bureau of Research and Statistics Memorandum No. 51 (2nd ed.). Washington, D. C.: Gov. Ptg. Office (May), 1947.

Axelrod, S. J. The Medical Care Bookshelf. A.J.P.H. (Apr.), 1953.

Johnston, Helen L., and Manny, Elsie S. (Compilers). Rural Health Annotated List of Selected References (rev.). U. S. Department of Agriculture Library List 60. Washington, D. C.: U. S. Dept. Agric. (USPHS cooperating) June, 1953, 83 pp.

Hollingsworth, Helen; Johnston, Helen L.; and Baney, Anna Mae. Health Programs Digest—Selected Plans, Programs, and Proposals in the United States. Washington, D. C.: PHS Publ. 191, 1952, 146 pp.

Manny, Elsie S. Voluntary Health Insurance, Selected Annotated Reference, Bibliographical Bull. No. 25. Washington, D. C.: U. S. Dept. Agric., 1954.

Turner, Violet B. Chronic Illness: Digests of Selected References. USPHS Bibliographic Series 1, 1951.

Folsom, Josiah C. Migratory Agricultural Labor in the United States. U. S. Dept. Agric. Library List 59, 1953.

31. White, Ruth. Medical Care in Public Assistance, 1946. Federal Security Agency, Social Security Administration, Bureau of Public Assistance, Washington, June, 1952.

———. Medical Services in the Old Age Assistance Program. Social Security Bull. (June), 1952.

32. Goldmann, Franz. Public Medical Care. New York, N. Y.: Columbia University Press, 1945.

33. Medical Care in a National Health Program. An Official Statement of the American Public Health Association. Adopted October 4, 1944. A.J.P.H. (Dec.), 1944.

Planning for the Chronically Ill. Joint Statement of Recommendations by the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association. Ibid. (Oct.), 1947.

Coordination of Hospitals and Health Departments. Joint Statement of Recommendations by the American Hospital Association and the American Public Health Association. Ibid. (May), 1948.

Terris, Milton, and Kramer, Nathan A. General Medical Care Programs in Local Health Departments. New York, N. Y.: American Public Health Association, 1951.

Tax-Supported Medical Care for the Needy. A Statement of the Joint Committee on Medical Care of the American Public Health Association and the American Public Welfare Association. A.J.P.H. (Oct.), 1952.

Tax-Supported Health and Welfare Services; The Essentials of Interdepartmental Relationships. A Joint Statement on Recommended Agency Practices by the American Public Health Association and the American Public Welfare Association. Ibid. (Jan.), 1957.

34. New York Academy of Medicine. Medicine in the Changing Order. New York, N. Y.: Commonwealth Fund, 1947.

35. Child Health Services and Pediatric Education. American Academy of Pediatrics Committee for the Study of Child Health Services, with the cooperation of the U. S. Public Health Service and the United States Children's Bureau. New York, N. Y.: Commonwealth Fund, 1949.

Supplement to Child Health Services and Pediatric Education: Methodology and Tabulations on Services. New York: Commonwealth Fund, 1949.

36. Hoffer, Charles R., and Schuler, Edgar A. Measurements of Health Needs and Health Care. Am. Sociol. Rev. (Dec.), 1948.

37. America's Health. The National Health Assembly. New York, N. Y.: Harper, 1949.

38. Hagerstown Health Studies. An Annotated Bibliography. PHS Publ. No. 148. Washintgon, D. C.: Gov. Ptg. Office, 1952.

39. U. S. Department of Interior, Coal Mines Administration. A Medical Survey of the Bituminous Coal Industry. Washington, D. C.: Gov. Ptg. Office, 1947.

40. Britten, Rollo H., and Perrott, St. J. Summary of Physical Findings on Men Drafted in the World War. Pub. Health Rep. (Jan. 10), 1942.
Selective Service System: Causes of Rejection and Incidence of Defects. M. Statist. Bull. No. 2. Washington (Aug.), 1943.

41. Sinai, Nathan, and Anderson, Odin W. "EMIC, A Study in Administrative Experience." Ann Arbor, Mich.: School of Public Health, University of Michigan, 1948.

42. Boes, Lillian. Health Services for Public Assistance Recipients in Canada. Health Care Series No. 1. Ottawa, Canada: Dept. of National Health and Welfare, 1957. This report contains a list of studies made by the Research Division alone in collaboration with other divisions or agencies in the fields of voluntary health programs, governmental health insurance in various foreign countries, medical personnel and facilities, dental care, occupational health, and rehabilitation as well as all special compilations dealing with the Canadian sickness survey.

43. Darsky, Benjamin J.; Sinai, Nathan; and Axelrod, Solomon J. Problems in Voluntary Insurance; Some Answers from the Windsor Experience. A.J.P.H. (Aug.), 1958.
44. Roth, F. Burns; Myers, Glyn W.; Mott, Frederick D.; and Rosenfeld, Leonard S. The Saskatchewan Experience in Payment for Hospital Care. Ibid. (June), 1953.
45. Mountin, Joseph W.; Pennell, Elliott H.; and Hoge, Vane M. Health Service Areas—Requirements for General Hospitals and Health Centers, Pub. Health Bull. 292. Washington, D. C.: Gov. Ptg. Office, 1945 (being revised).

Rice, Dorothy P., and Reed, Louis S. The Nation's Need for Hospitals and Health Centers. Public Health Service, Division of Hospital Facilities, June, 1949.

Manny, Elsie S., and Rogers, Charles E. Hospitals for Rural People. Farmers Bull. 2110. Washington, D. C.: U. S. Dept. Agric., 1957.

Reed, Louis S., and Hollingsworth, Helen. How Many General Hospital Beds Are Needed? PHS Publ. No. 309. Washington, D. C.: Gov. Ptg. Office, 1953.

Hospitals—The Guide Issue, Part 2 (Aug.), Annual Issues.

46. Commission on Financing Hospital Care. Harry Becker (Ed.). Financing Hospital Care in the United States; Prepayment and the Community and Financing Hospital Care for Nonwage and Low-Income Groups. New York: McGraw-Hill, 1955.
47. President's Commission on the Health Needs of the Nation. Building America's Health—A Report to the President. Washington, D. C.: Gov. Ptg. Office, 1953.
48. Health Manpower Source Book. Sections 1–8: physicians, nursing personnel, medical social workers, county data for 16 health occupations, industry and occupation data by states, medical record librarians, dentists, and dental hygienists. PHS Publ. No. 263. Washington, D. C.: Gov. Ptg. Office, 1952–1957.
49. Annals of the American Academy of Political and Social Science. Edited by Hugh R. Leavell, and Franz Goldmann (Jan.), 1951, issue.
50. Committee for the Special Research Project in the Health Insurance Plan of Greater New York: Health and Medical Care in New York City. Published for the Commonwealth Fund by Harvard University Press, 1957.
51. Duncan, Otis Durant, et al. Social Research on Health. New York, N. Y.: Social Science Research Council, 1946.

Schuler, Edgar A.; Hoffer, Charles R.; Loomis, Charles P.; and Miller, Paul A. Objectives and Methods of Rural Sociological Research in Health at Michigan State College. Rural Sociology (Sept.), 1949.

Journal of Social Issues 8:4 (Oct.), 1952, 56 pp. (entire issue).

Hyde, Henry van Zile. Public Health and the Social Sciences, Pub. Health Rep. 72, 5:421–429 (May), 1957.

Shepe, Cecil G., and Taylor, Eugene H. Needed Research in Health and Medical Care—A Bio-social Approach. Chapel Hill, N. C.: University of North Carolina Press, 1954.

Koos, E. L. The Health of Regionville. New York, N. Y.: Columbia University Press, 1955, and "Metropolis"—What City People Think of their Medical Services. A.J.P.H. (Dec.), 1955.

Roemer, Milton I., and Wilson, Ethel A. Pattern of Organized Medical Care Programs in a Rural County. A.J.P.H. (July), 1950.

————, Impact of Organized Medical Service on the Population of a New England Town. Ibid. (Oct.), 1952.

Commission on Chronic Illness. Chronic Illness in a Large City. Cambridge, Mass.: Harvard University Press, 1957.

Rosenfeld, Leonard S., et al. Medical Care Needs and Services in the Boston Metropolitan Area, 1957.

Trussell, Roy E. Hunterdon Medical Center. Published for the Commonwealth fund by Harvard University Press, 1956.
52. Anderson, Odin W., and Seacot, Milvoy. The Behavorial Scientists and Research in the Health Field. New York, N. Y.: Health Information Foundation, 1956.
53. Anderson, Odin W., and Feldman, Jacob I. Family Medical Costs and Voluntary Health Insurance: A Nationwide Survey. New York, N. Y.: McGraw-Hill, 1956.

Miss Klem is public health adviser, Public Health Service, U. S. Department of Health, Education and Welfare, presently on loan in the research office of the deputy commissioner, City Department of Health, New York, N. Y.

This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 13, 1957.

Available Material on Staphylococcal Infection

The National Library of Medicine has compiled a bibliography on staphylococcal infections, designed for both private and public health physicians engaged in combating the increased incidence of antibiotic-resistant staphylococcal infections in the home, community, and hospital. National Library of Medicine, 7th St. and Independence Ave., S. W., Washington 25, D. C. Free.

There has been much in the news recently about the declining number of patients in public mental hospitals. What does this actually mean? Has it actually been due to the use of new drugs? The problems involved in arriving at a firm basis for interpreting the data are discussed in this article and suggestions are offered for better information.

PROBLEMS IN THE INTERPRETATION OF TRENDS IN THE POPULATION MOVEMENT OF THE PUBLIC MENTAL HOSPITALS

Morton Kramer, Sc.D., F.A.P.H.A., and Earl S. Pollack

BETWEEN THE end of fiscal years 1955 and 1956, the number of patients resident in the public mental hospitals of the nation (exclusive of VA) decreased from 559,420 to 552,005, a drop of 7,415 or 1.3 per cent. This was the second decrease ever noted in the population of these hospitals. The first occurred between 1942 and 1943 when the number of patients decreased by 0.3 per cent. The 1955–1956 decrease has aroused much interest since it occurred in the public mental hospital systems of 39 of the 48 States and the District of Columbia and occurred during a period when the use of tranquilizing drugs was reported to be quite widespread in most of these hospitals.

In order to place the current decrease in its proper perspective and to assess its significance, it was decided to study trends in the size of these populations during a recent period of years. Thus, this paper will present an analysis of trends in (a) the number of resident patients, admissions, releases, and deaths in the public mental hospitals of the nation and of each state during the period 1945–1955; (b) the crude resident patient rates per 100,000 population; and (c) rates of hospital population movement, such as the number of net releases and deaths per 1,000 average resident patient population, and relate the value of each index during 1955–1956 to the value expected from its trend during the 11-year period 1945–1955. The question to be investigated is, "How do the observed values of the various indexes of patient movement in 1956 compare with what would have been expected in this year on the basis of this 11-year trend?"

These analyses will also serve to indicate the inadequacy of currently available data for evaluating change in the size of these hospital populations and the complexity of the problems of assessing the effect of tranquilizers on patient movement. The authors will discuss a method for data collection and analysis that should yield more sensitive indexes for detecting significant changes in annual population movement and thus provide a better basis for assessing the effect of treatment innovations and new pro-

grams on the movement of various segments of the hospital population.

Data

For the purpose of this study, the public mental hospitals are defined as all of the state mental hospitals (including psychopathic) in the nation plus the county hospitals in the five states in which they are located (California, Wisconsin, New Jersey, Maryland, and Tennessee). During the period 1945–1956 the total number of these hospitals increased from 254 to 278. The number of state hospitals increased from 200 to 230, while the number of county hospitals decreased from 54 to 48.

The mentally ill population in the VA hospitals was excluded because of problems in obtaining data comparable to those for the other public hospitals.

The data used consist of the number of patients resident in the hospital at the beginning and end of each fiscal year, admissions (first and readmissions combined), net releases (to be defined later), and deaths during each fiscal year for the specified set of public mental hospitals in the period 1945–1956. These data were abstracted from the population movement summaries submitted by the various state mental hospital systems for the Annual Census of Patients in Mental Institutions.[1] In each of the 11 years the reporting was complete for all the hospitals in each state with only minor exceptions. This period was chosen for the analysis because the data immediately prior to 1945 reflect unusual circumstances created by World War II.

Method of Analysis

The data for resident patients, admissions, releases, deaths and net release and death rates for the United States total and for each state were plotted on semilog paper. Inspection of the data indicated that the trends were essentially linear and could be described quite well by curves of the form $y = AB^x$ or $\log y = \log A + (\log B)x$, where $y =$ trend value of variable and $x =$ the year measured from 1950 as zero. Curves of this type were fitted to each set of variables during the period 1945–1955 for the United States as a whole and for each state. These curves were projected to 1956 to determine the expected values during that year.

If, for each curve, the deviations of the observed values from the trend line were independent, the appropriate test for the significance of the differences between observed and expected values would be the t ratio, $\frac{O - E}{S}$, for nine degrees of freedom at the 5 per cent level using a two-tailed test ($t = 2.262$),

where $O = \log_{10}$ (observed 1956 value of variable)
$E = \log_{10}$ (expected 1956 value of variable)
$S =$ standard error of the value predicted in 1956 from equation $\log y = \log A + (\log B)x$.*

The assumption of independent residuals necessary for the application of the t test may well be violated in some instances in the present analysis.† How-

* The formula used for the standard error of estimated value is

$$S = Sy.x \sqrt{1 + \frac{1}{n} + \frac{(x_{56} - \bar{x})^2}{\Sigma (x - \bar{x})^2}}$$

where $$Sy.x = \sqrt{\frac{\Sigma (\log y - \log Yc)^2}{n - 2}}$$

where $Yc =$ trend value
$y =$ observed value
$n =$ number of years
$x =$ the year measured from 1950 as zero
Thus, $x_{56} = 6$ and $\bar{x} = 0$

† As an illustration, for the 23 states in which the observed number of resident patients at the end of 1956 was significantly lower than expected, nine had significant serial correlation in the residuals, nine had no significant serial correlation, and in five states the significance of the serial correlation was indeterminate based on a test developed by Durbin and Watson.[2]

ever, appropriate adjustment to the *t* test to take account of serial correlation in time series with small numbers of observations has, to the knowledge of the authors, not been developed. Since no more appropriate test of statistical significance is known for the type of problem involved in this study, the *t* test, as described above, was used as an operational method for singling out those states in which substantial deviations of observed values from expected occurred.

Table 1—Trend of Number of Resident Patients, Admissions, Net Releases, and Deaths, Public Mental Hospitals, 1945–1955 and Comparison of Observed Values in 1956 with Expected Trend Values, by State

STATE	RESIDENT PATIENTS				ADMISSIONS			
	TREND EQUATION ($y = AB^x$)*		1956 VALUES		TREND EQUATION ($y = AB^x$)*		1956 VALUES	
	A	B	Observed	Expected	A	B	Observed	Expected
United States	508,400	1.020	552,005*	573,890	149,260	1.040	186,342	199,110
Alabama	6,401	1.029	7,277	7,597	2,029	1.013	2,294	2,193
Arizona	1,480	1.041	1,639*	1,882	727	1.047	830	960
Arkansas	4,821	1.006	4,958	4,994	2,077	1.015	2,141	2,276
California	31,851	1.037	37,365*	39,505	13,148	1.069	18,276	19,602
Colorado	5,135	1.025	5,628	5,949	1,643	1.001	1,709	1,650
Connecticut	8,447	1.012	8,535*	9,082	2,917	1.054	4,209	3,997
Delaware	1,395	1.038	1,674	1,749	553	1.109	968	1,031
Florida	6,562	1.043	8,069*	8,445	1,358	1.036	1,879	1,677
Georgia	9,991	1.033	11,844	12,171	2,642	1.063	3,383	3,820
Idaho	1,145	1.017	1,179*	1,267	524	1.186	1,082*	1,460
Illinois	35,693	1.020	37,885*	40,208	12,350	1.031	14,615	14,846
Indiana	9,730	1.023	10,908	11,140	2,158	1.082	3,784	3,469
Iowa	6,040	0.976	5,088	5,205	2,026	1.067	2,986	2,986
Kansas	4,855	0.986	4,394	4,467	934	1.055	1,711	1,289
Kentucky	7,007	1.020	7,335*	7,894	1,976	1.034	2,728	2,418
Louisiana	7,266	1.022	8,264	8,269	2,135	1.032	2,894	2,580
Maine	2,807	1.012	2,981	3,023	721	1.027	898	845
Maryland	7,950	1.030	9,382	9,506	2,171	1.064	4,218	3,156
Massachusetts	23,554	1.002	22,202*	23,770	7,989	1.015	7,853	8,749
Michigan	19,906	1.017	21,469*	21,967	4,287	1.017	5,032	4,743
Minnesota	10,826	1.011	11,356	11,555	3,056	1.083	4,647	4,927
Mississippi	4,825	1.027	5,224*	5,651	2,395	1.082	2,819*	3,852
Missouri	12,255	0.997	11,753*	12,069	2,111	0.975	1,813	1,815
Montana	1,791	1.006	1,860	1,963	544	1.081	916	968
Nebraska	4,590	1.013	4,756	4,960	1,173	1.118	1,730	2,292
Nevada	376	1.027	439	441	150	1.100	231	266
New Hampshire	2,539	1.017	2,600*	2,801	941	1.010	928	997
New Jersey	19,168	1.027	22,022	22,524	6,020	1.048	7,759	7,969
New Mexico	1,026	1.008	912*	1,075	293	1.076	550	455
New York	85,128	1.026	96,266*	99,330	20,483	1.026	22,357	23,875
North Carolina	8,852	1.030	9,794*	10,593	2,487	1.060	3,551	3,537
North Dakota	2,056	0.999	1,886*	2,047	517	1.055	906	713
Ohio	24,482	1.035	28,057*	30,165	7,991	1.073	10,848	12,172
Oklahoma	7,652	1.011	7,835*	8,150	1,997	1.009	2,259	2,106
Oregon	4,424	1.014	4,980	4,795	1,871	1.084	3,075	3,043
Pennsylvania	37,054	1.016	39,947	40,800	6,757	1.032	7,234*	8,179
Rhode Island	3,198	1.019	3,402*	3,577	1,126	1.075	1,491	1,736
South Carolina	5,301	1.025	6,224*	6,137	1,891	1.045	2,343	2,469
South Dakota	1,630	1.005	1,613	1,682	532	1.048	780	706
Tennessee	7,483	1.016	8,169	8,252	2,468	1.034	3,387	3,010
Texas	15,222	1.026	15,937*	17,730	4,894	1.011	6,399	5,218
Utah	1,248	1.019	1,296*	1,399	438	0.999	489	436
Vermont	1,209	1.020	1,234*	1,358	474	1.037	557	589
Virginia	10,112	1.015	11,037	11,034	3,450	1.008	3,844	3,619
Washington	7,133	1.010	7,152*	7,561	2,191	1.036	2,328	2,691
West Virginia	4,849	1.026	5,364	5,654	2,007	1.043	2,902	2,582
Wisconsin	14,142	1.013	15,087	15,242	4,179	1.020	5,144	4,719
Wyoming	523	1.011	643	664	193	1.091	268	327

* Y is the expected number and x is the year measured from 1950 as zero.

* Observed value significantly different from the expected at the 5 per cent level; $t_{.05} = 2.262$, 9 d.f. For limitations of this test see discussion in section on methodology.

Table 1—continued—Trend of Number of Resident Patients, Admissions, Net Releases, and Death, Public Mental Hospitals, 1945–1955 and Comparison of Observed Values in 1956 with Expected Trend Values, by State

STATE	NET RELEASES				DEATHS			
	TREND EQUATION ($y = AB^x$)#		1956 VALUES		TREND EQUATION ($y = AB^x$)#		1956 VALUES	
	A	B	Observed	Expected	A	B	Observed	Expected
United States	96,583	1.058	145,507	135,490	42,736	1.005	48,250*	43,963
Alabama	1,399	1.028	1,776	1,646	456	1.010	438	429
Arizona	533	1.075	730	823	126	1.025	151	147
Arkansas	1,605	1.032	1,905	1,942	423	0.945	364	301
California	9,286	1.093	15,386	15,874	2,704	1.015	2,802	2,957
Colorado	1,047	0.992	1,262	995	454	1.029	605	539
Connecticut	1,981	1.081	3,312	3,157	822	1.021	1,030	929
Delaware	399	1.112	774	732	116	1.070	214	174
Florida	692	1.068	1,278	916	406	1.010	534*	431
Georgia	1,511	1.097	2,306	2,637	816	1.006	934	864
Idaho	376	1.246	951	1,407	119	1.026	173	140
Illinois	8,078	1.057	11,289	11,237	3,327	1.006	3,822	3,649
Indiana	1,120	1.130	3,278	2,334	792	0.981	940*	707
Iowa	1,520	1.100	2,693	2,697	582	0.990	584	568
Kansas	613	1.140	1,458	1,348	332	0.945	279	236
Kentucky	1,209	1.067	2,357*	1,788	624	0.973	736*	529
Louisiana	1,530	1.039	2,450	1,926	449	0.990	451	396
Maine	442	1.043	649	569	243	0.995	264	236
Maryland	1,415	1.079	3,253	2,229	540	1.006	856	540
Massachusetts	5,665	1.027	6,758	6,630	2,312	0.998	2,195	2,290
Michigan	2,449	1.027	3,840	2,869	1,484	0.996	1,521	1,452
Minnesota	1,893	1.115	3,660	3,646	1,047	1.008	1,130	1,096
Mississippi	1,921	1.123	2,468*	3,633	399	0.967	422	327
Missouri	1,285	0.990	1,370*	1,207	851	0.966	711	691
Montana	373	1.095	761	644	161	1.033	214	196
Nebraska	795	1.175	1,352	2,088	305	1.032	448	369
Nevada	107	1.128	202	220	31	1.821	30	35
New Hampshire	614	1.018	748	684	286	0.996	313	279
New Jersey	3,457	1.043	5,451	4,456	2,059	1.026	2,548	2,402
New Mexico	193	1.154	512	456	80	1.010	76	85
New York	11,096	1.023	14,383*	12,735	7,429	1.017	8,437	8,197
North Carolina	1,681	1.096	3,199	2,914	534	0.969	518	441
North Dakota	361	1.095	854	624	144	0.996	159	140
Ohio	5,303	1.100	9,152	9,402	1,839	1.024	2,302	2,125
Oklahoma	1,383	1.008	1,961	1,452	562	0.990	577	536
Oregon	1,319	1.107	2,440	2,423	484	1.009	543	507
Pennsylvania	3,589	1.034	4,899	4,390	2,560	1.008	3,308*	2,680
Rhode Island	702	1.117	1,080	1,363	353	1.019	451	396
South Carolina	1,332	1.064	1,706	1,938	425	0.978	455	371
South Dakota	375	1.089	571	624	142	0.987	169	136
Tennessee	1,805	1.052	2,288	2,444	580	0.981	660	516
Texas	3,493	1.020	5,663	3,938	1,089	0.994	1,244	1,088
Utah	324	0.991	392*	306	93	1.036	138	135
Vermont	326	1.062	470	469	123	0.997	147	121
Virginia	2,393	1.003	3,086	2,430	883	0.989	1,024	828
Washington	1,376	1.054	1,895	1,884	762	0.997	642*	748
West Virginia	1,489	1.090	2,873	1,990	397	0.989	484	371
Wisconsin	2,833	1.023	3,555	3,256	1,188	1.010	1,510*	1,260
Wyoming	126	1.104	202	228	63	1.038	80	79

Y is the expected number and x is the year measured from 1950 as zero.

* Observed value significantly different from the expected at the 5 per cent level; $t_{.05} = 2.262$, 9 d.f. For limitations of this test see discussion in section on methodology.

The term "significant" used throughout this paper should be interpreted within these limitations.

Number of Resident Patients

On the basis of the trend during the period 1945–1955 for the United States as a whole, 573,890 residents would have been expected at the end of 1956 as compared to the observed number, 552,005. This difference of 21,885 was significant at the 5 per cent level.

Detailed data on trend of resident patients by state are presented in Table 1. Four states had an average per cent de-

Table 2—Trend in Resident Patients per 100,000 Total Population and Net Release and Deaths per 1,000 Average Resident Patient Population, 1945–1955 and Comparison of Observed Values in 1956 with Expected Trend Values, by State

STATE	Resident Patient Rates			
	Trend Equation ($y = AB^x$)#		1956 Values	
	A	B	Observed	Expected
United States	338.6	1.001	330.2	340.9
Alabama	212.9	1.019	232.1	238.9
Arizona	194.4	0.988	155.1*	180.6
Arkansas	262.8	1.004	273.2	269.3
California	293.3	1.002	278.2	297.1
Colorado	388.2	0.996	349.1*	379.4
Connecticut	418.3	0.995	382.4	406.5
Delaware	424.8	1.010	416.4	450.1
Florida	229.2	1.002	214.0	232.1
Georgia	292.2	1.017	319.1	323.0
Idaho	202.7	0.998	188.6	199.9
Illinois	413.1	1.004	401.7*	422.0
Indiana	245.4	1.003	247.2	249.5
Iowa	235.0	0.964	189.0	188.6
Kansas	253.2	0.972	208.9	213.3
Kentucky	243.4	1.007	243.1	254.2
Louisiana	268.8	1.004	275.1	274.7
Maine	319.6	1.002	327.6	324.2
Maryland	333.0	1.006	333.6	345.7
Massachusetts	508.9	0.993	461.4	486.8
Michigan	310.1	0.992	285.6	294.8
Minnesota	369.3	0.992	350.4	351.4
Mississippi	226.8	1.022	246.0	258.9
Missouri	312.3	0.983	276.2	282.4
Montana	332.2	0.981	291.5	296.2
Nebraska	352.0	1.001	336.4	354.8
Nevada	218.8	0.981	177.7	194.7
New Hampshire	485.6	1.001	464.3	489.6
New Jersey	295.3	1.005	407.6	408.5
New Mexico	154.0	0.967	111.9*	126.2
New York	580.4	1.005	594.4	596.9
North Carolina	222.3	1.011	221.4*	237.4
North Dakota	341.8	0.984	287.1*	311.0
Ohio	305.5	1.014	308.5*	332.0
Oklahoma	356.2	1.004	350.2*	364.9
Oregon	297.4	0.985	289.9	270.7
Pennsylvania	358.6	1.003	364.3	365.0
Rhode Island	404.1	1.013	410.9*	437.9
South Carolina	251.4	1.005	264.5	258.7
South Dakota	256.5	0.989	231.8	239.4
Tennessee	231.0	1.003	235.7	235.0
Texas	194.0	1.002	178.6*	196.8
Utah	180.5	0.992	159.6*	172.0
Vermont	334.2	1.006	333.5	347.2
Virginia	301.9	1.002	302.3	305.2
Washington	300.6	0.993	268.2*	288.9
West Virginia	251.6	1.013	270.5	271.8
Wisconsin	417.6	0.994	400.8	403.1
Wyoming	223.1	0.987	199.7	206.3

Y is the expected number and x is the year measured from 1950 as zero.

* Observed value significantly different from the expected at the 5 per cent level; $t_{.05} = 2.262$, 9 d.f. For limitations of this test see discussion in section on methodology.

Table 2—continued—Trend in Resident Patients per 100,000 Total Population and Net Release and Deaths per 1,000 Average Resident Patient Population, 1945–1955 and Comparison of Observed Values in 1956 with Expected Trend Values, by State

STATE	Net Release Rates			
	Trend Equation ($y = AB^x$)#		1956 Values	
	A	B	Observed	Expected
United States	191.8	1.037	260.9*	238.4
Alabama	221.4	0.998	245.4	218.6
Arizona	367.3	1.029	438.4	436.4
Arkansas	334.1	1.027	379.3	392.1
California	296.5	1.054	412.3	407.0
Colorado	206.6	0.967	221.1	168.6
Connecticut	235.8	1.066	385.0	346.6
Delaware	289.8	1.072	459.6	440.9
Florida	107.6	1.005	158.8	110.7
Georgia	153.6	1.062	195.9	220.3
Idaho	330.3	1.226	792.5	1,120.0
Illinois	228.5	1.034	296.0	280.1
Indiana	116.3	1.107	294.7	214.5
Iowa	249.1	1.127	514.5	510.2
Kansas	125.5	1.154	330.8	296.7
Kentucky	174.0	1.047	313.5*	228.8
Louisiana	212.8	1.018	296.3	236.8
Maine	158.4	1.031	217.1	189.7
Maryland	180.3	1.048	348.7	239.1
Massachusetts	240.5	1.025	297.0	278.2
Michigan	124.1	1.010	177.5	131.9
Minnesota	175.5	1.104	320.3	318.6
Mississippi	380.9	1.092	469.2	645.7
Missouri	104.7	0.992	115.3*	99.6
Montana	197.2	1.089	402.6	328.6
Nebraska	174.0	1.159	242.2	422.8
Nevada	287.3	1.100	459.1	508.2
New Hampshire	243.6	1.002	280.5	245.7
New Jersey	182.5	1.017	246.2	201.9
New Mexico	188.4	1.140	549.9	412.4
New York	131.9	0.998	149.1*	130.1
North Carolina	192.1	1.064	323.9	278.4
North Dakota	175.8	1.094	440.2	301.7
Ohio	220.1	1.062	322.7	316.2
Oklahoma	181.2	0.999	234.8	179.6
Oregon	300.2	1.094	494.6	513.7
Pennsylvania	97.6	1.019	121.2	109.1
Rhode Island	221.4	1.096	315.6	382.8
South Carolina	254.1	1.040	278.2	320.7
South Dakota	230.1	1.081	355.1	368.0
Tennessee	242.0	1.035	287.8	296.9
Texas	231.6	0.994	349.8	223.1
Utah	261.2	0.971	297.8*	219.4
Vermont	272.1	1.041	371.8	346.4
Virginia	238.5	0.990	289.2	224.0
Washington	193.5	1.044	261.1	250.1
West Virginia	310.6	1.025	486.8	359.2
Wisconsin	201.4	1.011	236.3	215.1
Wyoming	203.1	1.093	311.7	346.4

Y is the expected number and x is the year measured from 1950 as zero.

* Observed value significantly different from the expected at the 5 per cent level; $t_{.05} = 2.262$, 9 d.f. For limitations of this test see discussion in section on methodology.

Table 2—continued—Trend in Resident Patients per 100,000 Total Population and Net Release and Deaths per 1,000 Average Resident Patient Population, 1945–1955 and Comparison of Observed Values in 1956 with Expected Trend Values, by State

STATE	Death Rates			
	Trend Equation ($y = AB^x$)#		1956 Values	
	A	B	Observed	Expected
United States	84.8	0.985	86.5*	77.4
Alabama	72.2	0.961	60.5	56.9
Arizona	87.0	0.981	90.7	77.7
Arkansas	87.9	0.941	72.5	60.9
California	86.3	0.979	75.1	75.8
Colorado	89.6	1.003	106.0*	91.4
Connecticut	97.8	1.007	119.7	102.0
Delaware	84.0	1.033	127.1	101.8
Florida	63.0	0.969	69.3*	52.1
Georgia	82.9	0.974	79.3	70.9
Idaho	104.8	1.010	144.2	111.0
Illinois	99.8	0.985	100.2	91.0
Indiana	82.3	0.961	84.5*	65.0
Iowa	95.4	1.014	111.6	103.7
Kansas	67.9	0.957	63.3	52.0
Kentucky	89.8	0.954	97.9*	67.7
Louisiana	62.4	0.960	54.5	48.8
Maine	87.2	0.983	88.3	78.7
Maryland	68.9	0.978	91.8	60.1
Massachusetts	98.2	0.996	96.5	96.1
Michigan	75.2	0.980	70.3	66.7
Minnesota	97.1	0.998	98.9	95.8
Mississippi	83.4	0.941	80.2	57.8
Missouri	69.3	0.968	59.8	57.1
Montana	85.2	1.027	113.2	99.9
Nebraska	66.9	1.019	93.5	74.7
Nevada	82.6	0.995	68.2	80.3
New Hampshire	113.4	0.979	117.4	100.0
New Jersey	108.7	1.000	115.1	108.8
New Mexico	78.1	0.998	81.6	77.0
New York	88.3	0.991	87.4	83.8
North Carolina	61.0	0.940	52.4	42.1
North Dakota	69.8	0.995	82.0	67.8
Ohio	76.3	0.989	81.2*	71.5
Oklahoma	73.7	0.981	72.8	65.5
Oregon	110.0	0.996	109.7	107.4
Pennsylvania	69.6	0.993	81.8*	66.6
Rhode Island	111.5	1.000	131.8	111.2
South Carolina	81.1	0.955	74.2	61.4
South Dakota	86.9	0.960	105.1*	68.2
Tennessee	77.8	0.965	83.0	62.7
Texas	72.2	0.968	76.8*	59.5
Utah	75.0	1.016	104.8	82.6
Vermont	102.8	0.977	116.3*	89.5
Virginia	88.1	0.977	96.0	76.3
Washington	107.1	0.988	88.5	99.3
West Virginia	82.7	0.965	88.1	66.9
Wisconsin	84.5	0.998	100.3*	83.2
Wyoming	101.8	1.028	123.5	120.4

Y is the expected number and x is the year measured from 1950 as zero.

* Observed value significantly different from the expected at the 5 per cent level; $t_{.05} = 2.262$, 9 d.f. For limitations of this test see discussion in section on methodology.

crease in their populations ranging from 0.3 per cent to 2.5 per cent. The remaining 44 states * showed increases during this period ranging from 0.2 per cent to 4.3 per cent. The resident population observed at the end of 1956 was lower than expected in 45 states and the difference was significant in 23. In three states the observed population was higher than expected and in only one was the difference significant.

Resident Patient Rates

The average annual resident patient rate per 100,000 total population (excluding armed forces overseas) for the United States during the 11-year period was 338.6, and the average annual rate of increase in this rate was 0.11 per cent. The observed value in 1956 was 330.2 as compared to an expected value of 340.9. This difference was not statistically significant.

On an individual state basis it was found that at the end of 1956, 41 states had lower rates than expected and in 12 of these the difference was significant. In none of the seven states with rates higher than expected was the difference significant (Table 2).

Factors Responsible for Change in the Size of the Resident Patient Population

Variations in the size of a resident population between two dates are a function of additions to and removals from the population during the specified interval of time. In a mental hospital, additions consist of admissions (first and readmissions) and returns from extramural care. Removals consist of placements on extramural care, direct discharges, and deaths. Thus, if

R_1 = Number of residents at beginning of year
A = Number of admissions during year
B = Number of returns from extramural care during year
C = Number of releases during year (i.e., the number of persons placed on extramural care and direct discharge)
D = Number of deaths during year
and R_2 = Number of resident patients at beginning of next year,
then $R_2 = R_1 + A + B - C - D$.

So as to understand how annual variations in the elements of the movement equation accounted for shifts in the year-end resident population of the various public mental hospital systems, the trends of admissions, deaths, and a quantity called "net releases" were studied. Unfortunately, national data on the annual number of patients placed on and returned from extramural care are not available. Since data are available on all other elements of the movement equation, it is possible to compute the quantity C-B, i.e., the net number of patients released to the community in any one year. It is this quantity that is referred to as "net releases."

Trends in Admissions, Net Releases, and Deaths

Figure 1 shows the trend of resident patients, admissions, net releases, and deaths for the United States as a whole. Admissions over the 11-year period under study were increasing at an average annual rate of 4.02 per cent, net releases, 5.80 per cent, and deaths, 0.47 per cent.

The numbers we would have expected in 1956 are presented in the top line of Table 1. Only the deaths were significantly higher than expected. However, each component deviated suffi-

* The District of Columbia was not included in this analysis since a sizable proportion of the patients in Saint Elizabeths Hospital are nonresidents of the District who were admitted to the hospital under special types of commitment not found in the other mental hospitals of the states.

ciently from its trend in the appropriate direction to produce a significantly smaller number of resident patients at the end of 1956 than expected.

The trends of admissions, net releases, and deaths were also studied in each state and are summarized in Table 1. Admissions increased in 46 states at an average annual rate ranging from 0.1 per cent to 18.6 per cent; in two states the trend decreased at an average annual rate of 0.1 per cent and 2.6 per cent respectively. The trend of net releases was upward in 45 states, ranging from 0.3 per cent to 24.6 per cent; and in three states, it was slightly downward, decreasing at a rate of approximately 1 per cent per year in each. The trend of deaths was upward in 25 states, ranging from an average annual rate of increase of 0.6 per cent to 7.0 per cent; and it was downward in 23 states with an average annual per cent decrease ranging from 0.2 per cent to 5.8 per cent.

With respect to the deviations of the observed values of each of the variables from their expected ones, it was found that (a) admissions were higher than expected in 24 (none significant) and lower in 24 (three significant); (b) net releases were higher than expected in 33 (four significant) and lower in 15 (one significant); and (c) deaths were higher than expected in 43 (five significant) and lower in five (one significant).

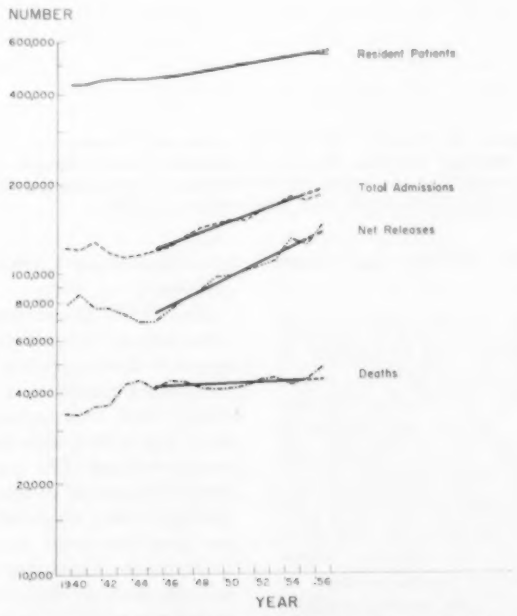


Figure 1—Number of Resident Patients, Total Admissions, Net Releases and Deaths, Public Mental Hospitals, United States, 1939–1956 and Corresponding Trend Lines, 1945–1955 with Projections to 1956.

Figure 2—Number of Net Releases and Deaths per 1,000 Average Resident Patient Population, Public Mental Hospitals, United States, 1939–1956 and Corresponding Trend Lines, 1945–1955 with Projections to 1956.

Changes in Net Release and Death Rates

The preceding analyses have been devoted to a consideration of changes in the number of resident patients, admissions, net releases, and deaths. Of considerably more interest are changes in the indexes which serve to measure the annual rates at which patients are released to the community or die in the hospital. For this purpose, two rates were determined, (a) the net release rate, defined as the annual number of net releases per 1,000 average resident population,* and (b) the annual number of deaths per 1,000 average resident patients.

The trends in net release and death rates for the United States and each state are summarized in Table 2. For the United States as a whole the net release rates, with an annual average of 191.8 per 1,000, were increasing at an annual rate of 3.71 per cent and the death rates, with an annual average of 84.8 per 1,000, were decreasing by 1.55 per cent per year (Figure 2). The 1956 observed net release rate of 260.9 was significantly different from the expected rate of 238.4. The 1956 observed death rate of 86.5 was also significantly different from the expected rate of 77.4. On an individual state basis it was found that during 1956 net release rates were

* The average number of resident patients was computed as the average of the resident population at the beginning and end of each year.

higher than expected in 36 states (four significant) and lower than expected in 12 (none significant); and death rates were higher than expected in 45 states (10 significant) and lower than expected in three (none significant).

Discussion

The preceding analyses have charted the gross changes that occurred in the public mental hospital populations of the various states during the period 1945–1956. The data indicate quite clearly that the size of this population for the nation as a whole was significantly lower at the end of 1956 than could have been expected on the basis of the trend of this population in the period 1945–1955. In addition, the 1956 year-end population was lower than expected in 45 of the states and the difference was significant in 23. Much publicity has been given to this decrease since it occurred in a year when the tranquilizing drugs were being used quite extensively in these hospitals.

Although use of drugs within the hospitals may have played an important part in many states in reducing the size of resident populations, it is not a simple matter to determine precisely how much of the reduction in population can be attributed directly to their use.

The basic equation describing the changes in resident population between two points in time makes it quite clear that for R_2 to be less than R_1 the additions to the population within a year through admission and returns from extramural care must be less than the movements out resulting from direct discharges, releases to extramural care and deaths. Thus, quantifying the role of drugs in reducing the hospital population requires a considerable number of facts which would permit assessment of the effect of drugs on reducing movement into and on increasing movement out of the hospital.

Because of the heterogeneous character of mental hospital populations, the crude data on population movement here presented and crude data on per cent of total patients in mental hospitals on drugs as have been published [3] are of little help in assessing effects of drugs on population shifts in these institutions. Such data reveal nothing about the age, sex, diagnostic, and length-of-stay groups in which changes have occurred or whether the changes were more striking in persons on drugs than in those who were not. For example, the fact that many states experienced a higher death rate than expected during 1956 is impossible to explain unless more is known about the specific patient groups in which increases occurred and if the use of drugs was in any way related to this.

If we are to understand the factors that account for the rise and fall of mental hospital populations, we must undertake studies that relate variations in admissions, net releases, and deaths not only to intrahospital factors but also to extrahospital factors which can affect these variables. The only study we are aware of that has investigated the relationship of the widespread use of tranquilizing drugs in mental hospitals to the decline in population of these hospitals is that done by Brill and Patton on the drop in resident population that occurred in New York Civil State Hospitals between year end 1955 and 1956.[4] This study analyzed in considerable detail data on drug usage in the various age, sex, and diagnostic groups during 1956 and related the changes in movement in specific patient categories to what had been occurring in the system in prior years. Although movement rates were not computed specific for patients on drugs as compared to those who were not, the investigators presented convincing evidence that the large-scale use of tranquilizing drugs within their hospitals was the major identifiable influence in producing the

population reduction between 1955 and 1956. The reduction was particularly noticeable in the functional psychoses and cases of longer hospital stay, especially the schizophrenics.

However, the results obtained in New York State do not necessarily apply to other public mental hospital systems. Among the more important reasons are: (1) the trend of resident patients, admissions, net releases, and deaths during 1945–1955 was considerably different than that for many other states *; (2) the diagnostic distribution of admissions and resident patients differs from that in other states; (3) New York State has a much higher proportion of general hospitals with psychiatric services, psychiatric clinics, and private psychiatrists in relation to population than any other state and this may affect both the admission rate and the types of patients admitted to the state hospitals; (4) the extent of usage of drugs was different in the New York Civil State Hospitals than in many other state hospital systems †; (5) there is considerable difference in staffing patterns and ratio of patients to personnel in the hospitals of the different states. Thus, there is need for additional studies on factors responsible for shifts in mental hospital populations in other states of the nation.

The remainder of the paper, therefore, will be devoted to a discussion of the types of data that must be collected both in the hospital and the community to make possible adequate interpretation of temporal changes in movement of patients into and out of the hospital, particularly in relation to such treatment innovations as the tranquilizers now, and such other therapies and programs as may be developed in the future. As will be seen, the intrahospital data can be obtained by modification of existing reporting systems to include the appropriate items of information. The community data can be obtained only by the development of programs which will study the factors that result in the admission of persons with mental disorders not only to mental hospitals but to other available treatment resources, how the existence of such resources affects the characteristics of the population admitted to mental hospitals, and how the extrahospital facilities, attitudes of families of patients, and other significant groups in the community are related to the release of patients.

Admissions

The advent of the tranquilizers has raised the possibility that agents are available that could prevent admissions to mental hospitals by making it possible to treat more patients on an outpatient basis and in the psychiatric services of general hospitals. Thus, to understand what effect the tranquilizers may be having on reducing the number of admissions to mental hospitals, a procedure must be evolved to determine whether mentally ill persons who might otherwise have been admitted to a men-

* The following is a comparison of the annual average per cent change in resident patients, admissions, net releases and deaths, and net release and death rates, 1945–1955, between New York State and the United States as a whole:

	Average Annual Per cent Change, 1945–1955	
	New York	United States
Resident Patients	2.6	2.0
Admissions	2.6	4.0
Net Releases	2.3	5.8
Deaths	1.7	0.5
Net Release Rate	—0.2	3.7
Death Rate	—0.9	—1.5

† It is difficult to obtain precise data on the extent of drug usage in the various state hospital systems. Brill and Patton [4] indicated that as of January, 1956, approximately 18 per cent of the average daily resident patient population were receiving drugs. Data presented in a report of the California legislature [3] indicate, for example, that in the Ohio state mental hospital system approximately 15–20 per cent of the patients were receiving tranquilizing drugs; in California approximately 6 per cent; and in New Jersey and Maryland approximately 30 per cent.

tal hospital are now being treated at home or in other community facilities. To throw light on this problem, studies are needed to determine how many persons in a defined geographical area are in need of psychiatric treatment. Definite criteria must be established for determining which of these patients can now be maintained at home or in other community facilities by use of the tranquilizing drugs. Follow-up studies are needed to find out how many eventually need hospitalization and why. Obviously, this is a very difficult problem requiring intensive case-finding, case-evaluation, and follow-up and cannot be solved by merely studying trends of admission to mental hospitals. As a start, mental hospital administrators and administrators of other community mental health facilities might organize a cooperative centralized case-reporting program in a defined geographical area which would supplement data on admissions to mental hospitals with reports on persons entering into treatment in clinics, general hospital facilities, and with private practitioners. These case reports could serve as a basis for systematic studies of factors associated with the eventual outcome of patients admitted to various community treatment facilities.

Returns from Extramural Care

Additions to the mental hospital populations result from returns of patients placed on extramural care as well as from admissions. Unfortunately, consistent data are not available from states to make it possible to study trends in the rates of rehospitalization from this extramural population specific for such factors as age, sex, diagnosis, length of stay in the hospital, and length of stay in the community. It is important that hospital authorities develop follow-up programs with adequate record keeping systems to provide pertinent data on this important group of patients so that changes in the rehospitalization rates can be related to the use of tranquilizing drugs, availability of various treatment and aftercare facilities in the community, and other community factors.

Releases and Deaths

The preceding analyses have shown that annual total net release and death rates and their trends have varied considerably among the different public mental hospital systems. The level of these indexes in the different states has resulted from an interaction of factors operating in these hospitals and in the communities they serve.

Consider some of the factors that influence the release rates. Of particular importance is the availability of other treatment facilities in the community—such as psychiatric facilities in general hospitals, outpatient clinics, private psychiatrists, nursing homes, and chronic disease hospitals—which exert an influence on the proportion of certain types of patients admitted to the mental hospital. For example, public mental hospitals in areas where there are also large psychiatric units in general hospitals may receive a higher proportion of patients with poorer prognosis than in areas where the mental hospital is the only or primary treatment resource. Other factors which influence these rates are the age, sex, diagnosis, and length-of-stay composition of these populations, the severity of illness in patients, restrictions on admission of certain types of patients (for example, alcoholics and seniles), types of commitment, the relative number of therapeutic personnel, the relative effectiveness of various treatment programs, the hospital's philosophy in relation to degree of improvement to be attained by patients in order to qualify for release, follow-up facilities, and a large variety of familial and community factors.

The number of deaths and the level of the death rate are influenced not only by the above factors but also by the number of admissions in the older age groups and their physical condition and the size of various age, sex, and diagnostic groups of the long-term patients and their health status.

It should be quite clear, therefore, that proper interpretation of differences in net release and death rates over the years within and between hospitals and within and between state systems is impossible unless the observed differences can be related to the pertinent factors. Indeed, there is a better possibility of interpreting changes in release and death rates in relation to innovations in hospital policies and programs and community factors if these rates are standardized for such readily obtainable and quantifiable variables as age, sex, diagnosis, length of stay, type of commitment, prior treatment, etc.

A method whereby these rates may be standardized for age is illustrated in Table 3, which presents an analysis of movement data between June 30, 1955, and June 30, 1956, for Saint Elizabeths Hospital specific for age (last birthday), for all disorders, schizophrenics, and the diseases of the senium.* Changes were charted in the June 30, 1955 population by adding to the appropriate groups the admissions during the year and returns from extramural care and subtracting the direct discharges, placements on extramural care and deaths. Each item was tabulated by the patient's age at time of each transaction. These data were used to analyze the numerical changes in the population and to compute net release and death rates per 1,000 average resident patient population during the year specific for age and diagnosis.

The variations in the annual net release and death rates per 1,000 average resident patients specific for age and diagnosis and by length of stay † and diagnosis are shown in Figure 3. The pronounced variations in these rates by age, diagnosis, and length of stay emphasize the need for annual release and death rates specific for at least these three variables. Studies of trends of these specific indexes can pinpoint the various elements of the hospital populations in which significant changes are occurring in the movement of patients as a result of the introduction of new therapies and treatment programs as well as changes in administrative policies.

Since a multiplicity of factors can produce change in mental hospital population movement, partialing out the proportion of the change due to the use of tranquilizing drugs is no simple matter. Controlled studies in which patients are assigned at random to drug and placebo groups are essential for a definitive analysis of the efficacy of the drugs. Despite the fact that selection of patients for drug treatment in routine hospital practice is not a random procedure, studies of annual movement data specific for the factors mentioned above according to whether patients were or were not on drugs would provide some useful information. Thus, comparisons can be made of release and death rates among patients on drugs with those among patients not on drugs during the year and each set of these rates can be compared with the corresponding rates among patients in the same specific categories in pre-drug periods. Even though selection of patients for drug therapy complicates such comparison, known facts about selection can be taken into

* Patton was the first to publish the tabulations of the type referred to by age, sex, and diagnosis for the New York Civil State Hospitals for the years 1955 and 1956, but not by length of hospitalization.[5] Saint Elizabeths data were used in this example because of the inclusion of data on length of hospitalization.

† A tabulation similar to that given in Table 3 was prepared according to length of time on the hospital books and copies of it are available upon request.

Table 3—Movement of Patient Population by Age for All Diagnoses, Schizophrenics and Patients with Mental Diseases of the Senium and Net Release and Death Rates per 1,000 Average Resident Patients, Saint Elizabeths Hospital, 1956

Age in Years	Resident Patients 6/30/55	Additions During Fiscal 1956			Removals During Fiscal 1956				Resident Patients 6/30/56	Average Resident Patient Population	Net Releases		Deaths	
		Admissions	Return from Extramural Care	Carried Over From Previous Age Group	Deaths	Direct Discharges	Placements on Extramural Care	Carried Over to Next Age Group			No.	Rate per 1,000 Average Res.Pt.	No.	Rate per 1,000 Average Res. Pt.
						All Diagnoses								
Total	7,318	1,327	960	424	595	466	1,458	424	7,086	7,202	964	133.8	595	82.6
Under 25	199	112	74	-	2	41	116	52	174	187	83	443.9	2	10.7
25-44	2,127	490	479	52	17	246	772	211	1,902	2,015	539	267.5	17	8.4
45-64	2,990	337	309	211	127	121	434	161	3,004	2,997	246	82.1	127	42.4
65 & over	2,002	388	98	161	449	58	136	-	2,006	2,004	96	47.9	449	224.1
						Schizophrenics								
Total	4,065	442	567	240	93	195	874	240	3,912	3,989	502	125.8	93	23.3
Under 25	109	62	41	-	1	20	73	28	90	100	52	520.0	1	10.0
25-44	1,629	302	379	28	9	127	609	148	1,445	1,537	357	232.3	9	5.9
45-64	1,693	74	136	148	31	42	179	70	1,729	1,711	85	49.7	31	18.1
65&over	634	4	11	70	52	6	13	-	648	641	8	12.5	52	81.1
						Diseases of the Senium								
Total	1,028	434	46	95	366	47	78	95	1,017	1,023	79	77.2	366	357.8
Under 65	144	89	8	-	35	12	19	30	145	145	23	158.6	35	241.4
65-74	343	136	27	30	89	23	40	65	319	331	36	108.8	89	268.9
75&over	541	209	11	65	242	12	19	-	553	547	20	36.6	242	442.4

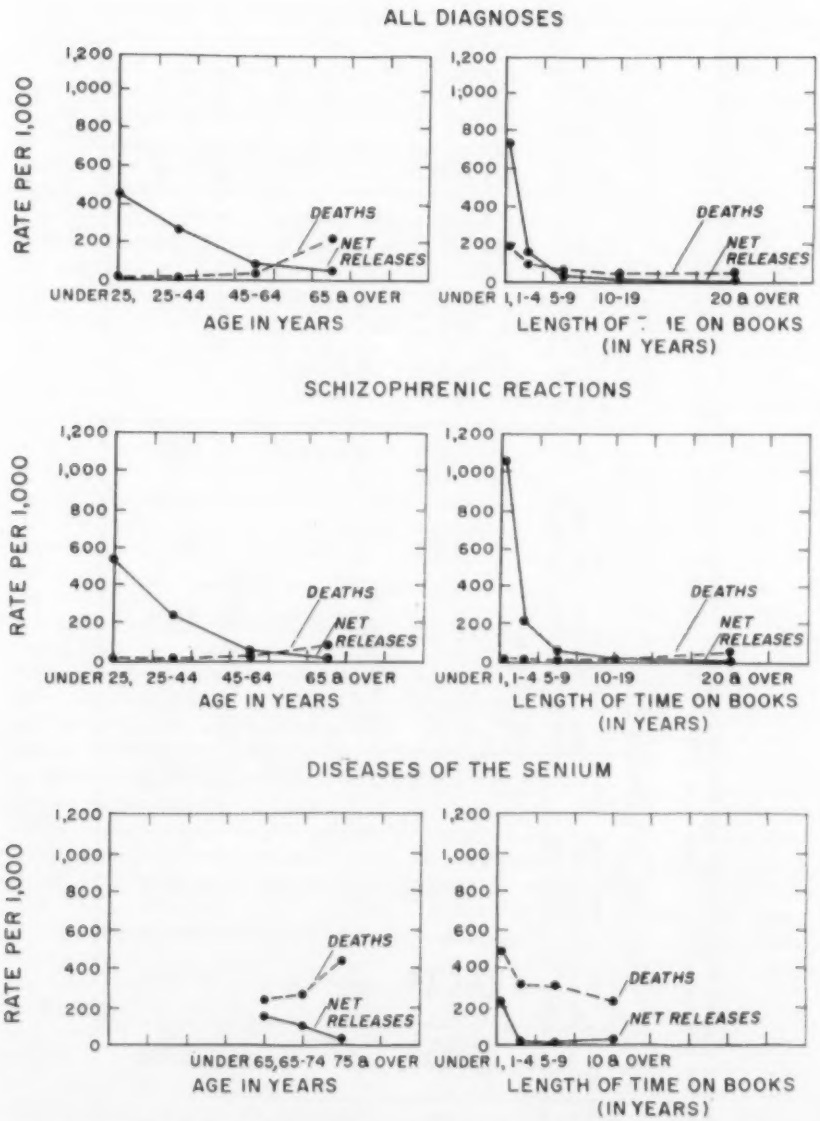


Figure 3—Number of Net Releases and Deaths per 1,000 Average Resident Patient Population, Specific for Age, Time on Books, and Selected Diagnoses, Saint Elizabeths Hospital, 1956.

account in assessing differences. The facts obtained from analyses of such data would provide more concrete evidence of the effect of drugs on population changes than we now have and in addition would indicate specific population groups in which further research should be carried out.

Summary

This study establishes the fact that the resident population of the public mental hospitals of the nation was lower at the end of fiscal 1956 than would have been expected on the basis of the trend of these populations during the period 1945–1955. The observed 1956 value was also lower than expected in 45 states and the difference was found to be significant in 23 states in accordance with the operational criteria used in this analysis. Despite the fact that tranquilizing drugs were widely used in these hospitals, it is not possible to state definitely how much of the decrease is due to this factor because of the lack of adequate data on drug utilization within hospitals and on patient movement specific for drug usage and such factors as age, sex, diagnosis, length of stay, type of commitment, and so forth. Only one state—New York—has published data concerning the possible effect of drugs on reduction in hospital population. Since the characteristics of the New York State Hospital populations are sufficiently different from those in other states and since there is a much higher concentration of community psychiatric facilities in New York State than in the other states, there is need for additional studies on intra- and extra-hospital factors responsible for shifts in mental hospital populations.

Obtaining the facts necessary to quantify the impact of tranquilizing drugs and such other therapies and programs as may be developed in the future on the mental hospital requires the revision of existing statistical systems in mental hospitals to provide appropriate intra-hospital data. But equally as important, programs must be developed which will coordinate data on utilization of all community treatment facilities so that the role played by the mental hospital can be studied in relation to that played by these other community facilities in the treatment and rehabilitation of the mentally ill.

ACKNOWLEDGMENTS—The authors wish to express their gratitude to Samuel Greenhouse, Dr. Seymour Geisser, and Donald Morrison of the Biometrics Branch, NIMH, for their advice in the development of the methodology of the study; to Robert Patton and Abbott Weinstein of the New York State Department of Mental Hygiene for their helpful discussion of the paper, particularly with regard to the problems inherent in the significance test; to the staff of the Hospital Studies Section, Biometrics Branch, NIMH, for their many hours of computations, and to the state mental hospital authorities who over the years have so painstakingly provided the basic movement data on which this study is based.

REFERENCES

1. Patients in Mental Institutions, 1947–1953, National Institute of Mental Health, U. S. Public Health Service, 1939–1946, U. S. Bureau of the Census, Washington, D. C.
2. Durbin, J., and Watson, G. S. Testing for Serial Correlation in Least Squares Regression, II. Biometrika 38:159–178 (June), 1951.
3. First Partial Report, Senate Interim Committee on the Treatment of Mental Illness, Senate of the State of California, 1956.
4. Brill, H., and Patton, R. E. Analysis of 1955–1956 Population Fall in New York State Mental Hospitals in First Year of Large-Scale Use of Tranquilizing Drugs. Am. J. Psychiat. 114, 6:509–517 (Dec.), 1957.
5. Provisional Statistics on Movement of Patients in Civil State Hospitals for Fiscal Year Ending March 31, 1956. Albany: New York State Department of Mental Hygiene, Office of Statistical Services, September, 1956.

Dr. Kramer is chief, Biometrics Branch, and Mr. Pollack is chief, Hospital Studies Section, Biometrics Branch, National Institute of Mental Health, National Institutes of Health, Bethesda 14, Md.

This paper was presented before a Joint Session of the Epidemiology, Mental Health, and Statistics Sections of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 15, 1957.

During the decade, 1940–1950, there was an increase in tuberculosis mortality rates of older men in Upstate New York, as well as in other places throughout the world. This phenomenon is examined and an explanation offered.

INCREASE OF TUBERCULOSIS MORTALITY IN ELDERLY MEN FROM 1940 TO 1950

Mary A. Monk, Ph.D., and Milton Terris, M.D., F.A.P.H.A.

THIS PAPER reports a phenomenon which, as far as is known, has received no mention in the American literature on tuberculosis and rather scant notice elsewhere. We refer to the increase in tuberculosis mortality among elderly men which occurred in the decade from 1940 to 1950. This was not merely a relative increase as compared with the mortality of younger men, but an absolute rise in the mortality rates of those 65 and older. The increase occurred in many of our larger cities in the United States; it also took place on a nationwide scale in a number of other countries.

We first became aware of this phenomenon during a study of tuberculosis mortality in Buffalo, N. Y., in which there was an opportunity to compare data for 1939–1941 and 1949–1951. It was surprising to find that socioeconomic differentials had widened considerably during this period. There was the additional disturbing fact that whereas tuberculosis mortality had declined for all the other groups indicated, there was an increase in the death rate for white men 35 years and over living in the poorest economic quartile of the city (Table 1).

Age-specific death rates were then calculated for each of the economic quartiles, and it was found that the rise in the death rate for men in the lowest quartile was limited to those 55 and older. Furthermore, while the greatest increases among older men were found in this quartile, they also occurred in other quartiles of the city (Table 2).

Finally, when age-specific death rates for the city as a whole in 1939–1941 and 1949–1951 were compared, we discovered that although the tuberculosis death rate for men of all ages declined by 17 per cent during this period, it actually rose by 7 per cent for men 55 to 64 and by 55 per cent for men 65 and over. This did not hold true for women; the rate for women of all ages declined by 49 per cent, for the 55 to 64 year group by 43 per cent and for those 65 and over by 40 per cent (Table 3, Figure 1).

At first, it was thought these findings might represent an isolated phenomenon peculiar to Buffalo. In a search for additional data to test this possibility, we were unable to find studies on socioeconomic differentials; however, a good deal of information was available on age changes in this and other countries.

In Upstate New York, we found the tuberculosis death rate for older men declined from 1915 to 1940 but increased from 1940 to 1949. Older

Table 1—Adjusted Tuberculosis Mortality Rates of White Population, by Sex, Major Age Groups, and Economic Quartiles, Buffalo, 1939–1941 and 1949–1951

Economic Quartile at Death	Adjusted Mortality Rates *					
	Under 35 Years		35 Years and Over		Total	
	1939–41	1949–51	1939–41	1949–51	1939–41	1949–51
Males						
I (highest)	17.3	5.9	46.7	31.5	30.3	17.2
II	17.0	9.5	80.9	50.0	45.4	27.4
III	16.3	7.7	125.9	62.9	64.9	32.1
IV (lowest)	31.1	16.5	172.4	200.0	93.8	97.7
Females						
I (highest)	23.9	4.7	20.8	10.3	22.6	7.2
II	32.3	9.6	25.2	17.0	29.2	12.9
III	25.8	17.8	41.5	10.8	32.7	14.7
IV (lowest)	46.2	13.8	45.3	30.6	45.8	21.2

* Adjusted to entire Buffalo population in 1940 as the standard population.

Table 2—Annual Tuberculosis Mortality Rates, White Male Population, by Economic Status and Age, Buffalo, 1939–1941 and 1949–1951

Age	Economic Quartile I		Economic Quartile II		Economic Quartile III		Economic Quartile IV	
	1939–41	1949–51	1939–41	1949–51	1939–41	1949–51	1939–41	1949–51
Under 15	5.3	0.0	0.0	8.1	2.0	0.0	12.6	0.0
15–24	20.7	11.9	11.9	0.0	21.8	3.6	38.3	18.9
25–34	29.5	6.9	45.4	21.5	29.8	22.1	48.2	35.5
35–44	41.7	17.5	43.0	27.0	98.2	34.1	135.1	74.3
45–54	55.0	26.6	85.4	36.3	147.3	46.3	218.6	206.2
55–64	48.4	44.9	118.4	63.9	150.0	155.2	195.4	311.2
65 and over	36.7	56.9	112.9	114.5	109.1	44.5	121.1	334.7

Table 3—Annual Tuberculosis Mortality Rates by Age and Sex, Buffalo, 1939–1941 and 1949–1951

Age	Males		Females	
	1939–41	1949–51	1939–41	1949–51
Under 15	7.0	2.0	15.2	5.7
15–24	30.1	17.3	52.2	17.7
25–34	44.9	30.5	52.5	31.6
35–44	96.9	56.2	39.0	20.6
45–54	131.2	91.3	29.1	22.2
55–64	136.6	150.7	33.7	23.3
65 and over	91.0	142.6	37.0	23.5
Total	65.2	56.1	36.7	19.6

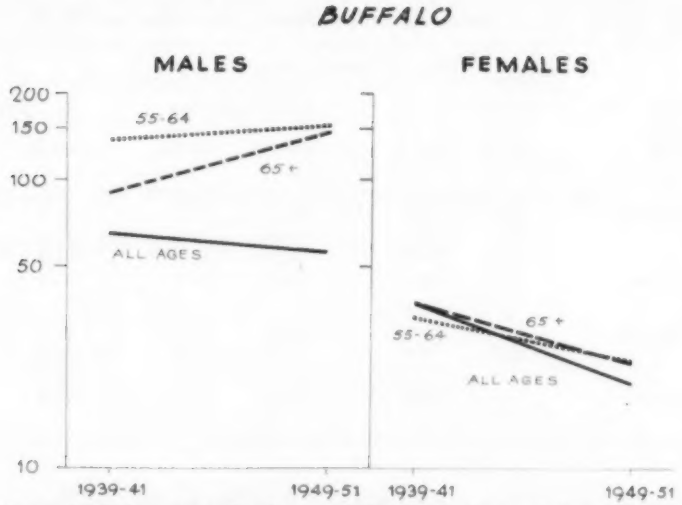


Figure 1—Tuberculosis Deaths per 100,000, by Sex and Age, Buffalo, 1939–1941 and 1949–1951

women in the 65 to 74 year age group did not show this increase, but the rate for women 75 and over remained the same in 1949 as in 1940 instead of declining (Table 4, Figure 2).

In the United States as a whole, tuberculosis mortality rates for older men declined from 1940 to 1950.[2] The national figures, however, obscure a rather marked rise in tuberculosis mortality of older men which occurred in many of our larger cities. We compared the death rates in 1939–1941 and 1949–1950 of 90 cities with a population of 100,000 or over,* [3] and found that 54 of these cities showed a rise during this period for men 65 years and older. The increases ranged from 1 to 344 per cent, with a median of 39 per cent. Although they occurred in cities of varying size and in different parts of the country, the increased rates appear to have been more frequent in the cities of the Middle Atlantic, East

* The National Office of Vital Statistics kindly furnished us the number of deaths for major cities in 1949 and 1950.

Table 4—Annual Tuberculosis Mortality Rates by Age and Sex, Upstate New York (New York State Exclusive of New York City), 1915, 1930, 1940, 1949 [1]

Age	Male				Female			
	1915	1930	1940	1949	1915	1930	1940	1949
All ages	154.0	68.8	43.2	32.4	110.1	50.5	24.4	14.2
65–74	164.2	92.6	80.9	93.9	97.5	62.3	45.2	29.6
75 and over	122.9	89.0	73.3	96.9	117.5	62.5	40.4	40.5

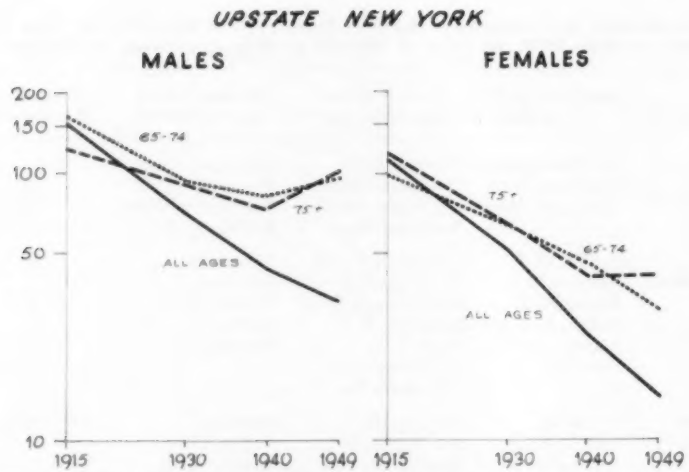


Figure 2—Tuberculosis Deaths per 100,000, by Sex and Age, Upstate New York, 1915, 1930, 1940, and 1949

North Central, and New England regions (Table 5).

Women 65 years and over showed increased tuberculosis death rates during this period in 23 of the 90 cities, with a median rise of 26 per cent. The increases occurred in Bridgeport, Fall River, Somerville, Springfield, Worcester, Providence, Elizabeth, Paterson, Trenton, Albany, Reading, Scranton, Chicago, Fort Wayne, Flint, Grand Rapids, Minneapolis, St. Paul, Wilmington, Salt Lake City, Oakland, Sacramento, and Tacoma.

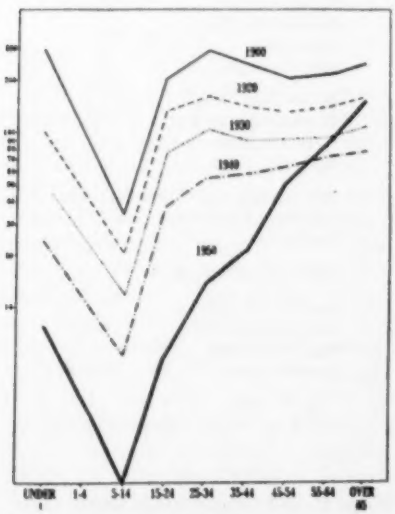


Figure 3—Tuberculosis Deaths per 100,000, by Age, Territory of Hawaii, 1900, 1920, 1930, 1940, and 1950 [4]

In the territory of Hawaii, the tuberculosis death rates for older persons declined steadily from 1900 to 1940. In 1950, however, there was a sharp increase for persons 55 and over, while the rate for those over 65 was about double the rate in 1940 and approached in magnitude the 1920 rate (Figure 3).[4]

In England and Wales, Stocks [5] noted that the tuberculosis death rates for men 65 and over rose from 54 in 1938 to 72 in 1948. Wilkins [6] observed that the rate for men over 65 reached a peak of 81 in 1951 and then declined in 1954 to 66, a rate still higher than in 1938. In all other age and sex groups,

Table 5—Changes in Tuberculosis Mortality Rates of Men 65 and Over from 1939–1941 to 1949–1950, 90 Cities of 100,000 or More Population, by Region

Region	Increase of 50 Per cent or More	Increase of Less than 50 Per cent	Decrease of Less than 50 Per cent	Decrease of 50 Per cent or More
New England	New Haven, Conn. Fall River, Mass. Springfield, Mass.	Hartford, Conn. Cambridge, Mass. Somerville, Mass. Worcester, Mass.	Bridgeport, Conn. Boston, Mass. New Bedford, Mass. Providence, R. I.	
Middle Atlantic	Newark, N. J. Paterson, N. J. Albany, N. Y. Buffalo, N. Y. Syracuse, N. Y. Erie, Pa.	Camden, N. J. Elizabeth, N. J. Jersey City, N. J. Rochester, N. Y. Utica, N. Y. Philadelphia, Pa. Pittsburgh, Pa.	Trenton, N. J. New York, N. Y. Yonkers, N. Y. Reading, Pa. Scranton, Pa.	
East North Central	Peoria, Ill. Detroit, Mich. Akron, Ohio Youngstown, Ohio	Chicago, Ill. Fort Wayne, Ind. Indianapolis, Ind. South Bend, Ind. Grand Rapids, Mich. Canton, Ohio Cincinnati, Ohio Cleveland, Ohio Columbus, Ohio	Gary, Ind. Dayton, Ohio Toledo, Ohio Milwaukee, Wis.	Flint, Mich.
West North Central	Des Moines, Iowa St. Paul, Minn. Omaha, Neb.	Minneapolis, Minn. St. Louis, Mo.	Wichita, Kan. Duluth, Minn. Kansas City, Mo.	Kansas City, Kan.
South Atlantic	Tampa, Fla. Atlanta, Ga.	Washington, D. C. Baltimore, Md.	Wilmington, Del. Jacksonville, Fla. Miami, Fla. Richmond, Va.	Norfolk, Va.
East South Central	Louisville, Ky.	Memphis, Tenn.	Birmingham, Ala. Chattanooga, Tenn. Knoxville, Tenn. Nashville, Tenn.	
West South Central	Fort Worth, Tex.	Houston, Tex. San Antonio, Tex.	New Orleans, La. Oklahoma City, Okla. Dallas, Tex.	Tulsa, Okla.
Mountain		Denver, Colo.	Salt Lake City, Utah	
Pacific	Spokane, Wash. Tacoma, Wash.	Oakland, Calif. Sacramento, Calif. San Francisco, Calif. Portland, Ore.	Long Beach, Calif. Los Angeles, Calif. San Diego, Calif. Seattle, Wash.	
Total	22	32	32	4

the tuberculosis death rates fell during this period (Figure 4a and b).[7]

Data for other nations have been obtained from charts published by the World Health Organization which compare death rates from respiratory tuberculosis for 1936–1938 and 1949–1950 in 20 selected countries.[8] In all 20

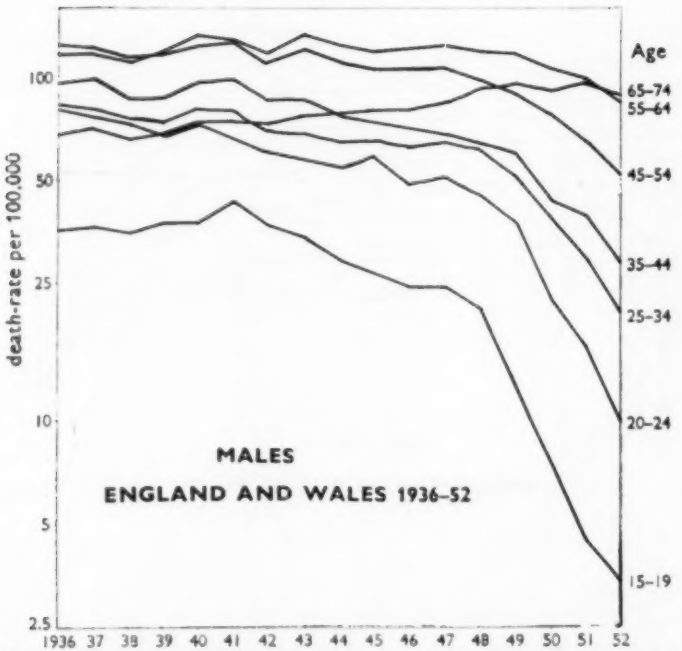


Figure 4a—Mortality from Tuberculosis of the Respiratory System in Males, According to Age, in England and Wales, 1936–1952 [7]

countries there was a decline in tuberculosis mortality for the nation as a whole during this period. For older men, however, increases occurred in 14 countries, as follows: 45 years and over, Spain; 50 and over, Portugal, Scotland, and Republic of Ireland; 55 and over, Belgium; 60 and over, Northern Ireland; 65 and over, Netherlands, France, and England and Wales; 70 and over, Norway, Australia, and New Zealand; and 75 and over, Finland and Canada. The rates for older men in Italy remained practically the same during this period, while they declined in only five of the 20 countries (Denmark, Sweden, Switzerland, the United States, and the Union of South Africa).

Increases for older women occurred in six of the 20 countries; for women 60 and over in the Republic of Ireland, for those 70 and over in Northern Ireland, France, Spain, and Portugal, and for those 75 and over in New Zealand.

The increases in older men are illustrated in Figures 5, 6, and 7.

Discussion

What is the explanation for this increase in the tuberculosis death rate for older men which occurred between 1940 and 1950? How can one account for a phenomenon which occurred in such widely scattered areas as Upstate New York, many large cities throughout the United States, most countries of Western Europe, and Hawaii, Australia, and New Zealand?

Between 1940 and 1950 the Interna-

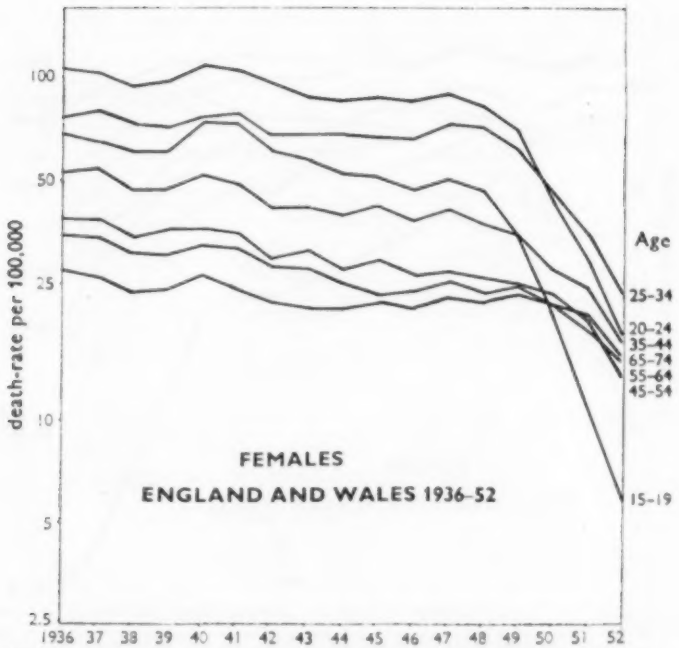


Figure 4b—Mortality from Tuberculosis of the Respiratory System in Females, According to Age, in England and Wales, 1936–1952 [7]

tional List of Causes of Death was revised (the new, Sixth Revision was first used in the United States in 1949), so that there were changes in regard to the classification of deaths. The possibility that the increase in rates may have been caused by such changes was considered, but according to data for New York State and for the United States as a whole the effect of the Sixth Revision was to decrease the rates, particularly in persons 65 years and older.[1, 2] That is, if the same classification had been used in both 1940 and 1950, an even greater increase in tuberculosis mortality among older persons would have been demonstrated.

Next the possibility was considered that the increase in large cities in the United States may have been the result of the migration of Negroes during the 1940–1950 decade into the industrial North. While we have not calculated rates for white males separately for all the cities, in Buffalo it is clear that for older white males as well as for all older males there were comparable increases in the rates from 1940 to 1950. For white males 55–64, the rate increased from 126.8 in 1939–1941 to 147.7 in 1949–1951; the corresponding rates for all males of this age were 136.6 and 150.7. For white males 65 and over, the rate increased from 92.1 in 1939–1941 to 133.5 in 1949–1951, and the corresponding rates for all males of this age were 91.0 and 142.6. It is also apparent that the increase in European countries cannot be accounted for by this explanation.

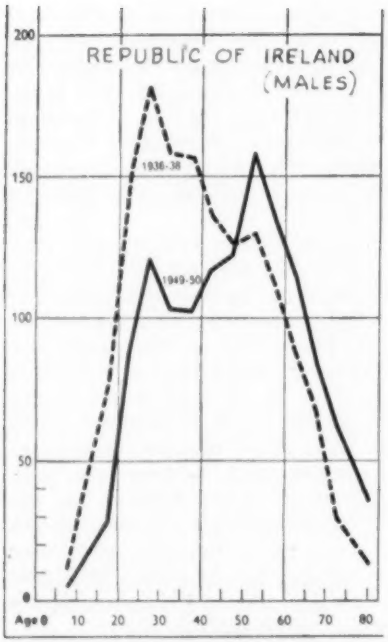


Figure 5—Deaths per 100,000, Respiratory Tuberculosis in Males, by Age, Republic of Ireland, 1936–1938 and 1949–1950 [8]

Another possibility has been suggested in the WHO report previously referred to, as follows: "The apparent increase in deaths among old people in some countries must not be regarded as a real worsening of the situation but rather as an accumulation of deaths which have been deferred, or alternatively, of lives which have been prolonged up to the limit when the lessened resistance due to advanced age finally results in death." [8] If this explanation were correct, one would expect two things to occur: (1) the increase among older men would have taken place over a period of several decades, and (2) the greatest increase would occur in the years after 1950, since the new chemotherapeutic and surgical methods were first applied on a wide scale during the late forties and these should have had the greatest effect in postponing deaths from tuberculosis to a later age.

However, the data we have been able to obtain fail to indicate that either of these phenomena actually occurred. In Upstate New York, for example, the tuberculosis death rates for elderly males declined steadily from 1915 to 1940 and then increased during the forties (Table 4). From 1950 to 1956, according to data obtained from the New York State Department of Health, the tuberculosis death rates in Upstate New York de-

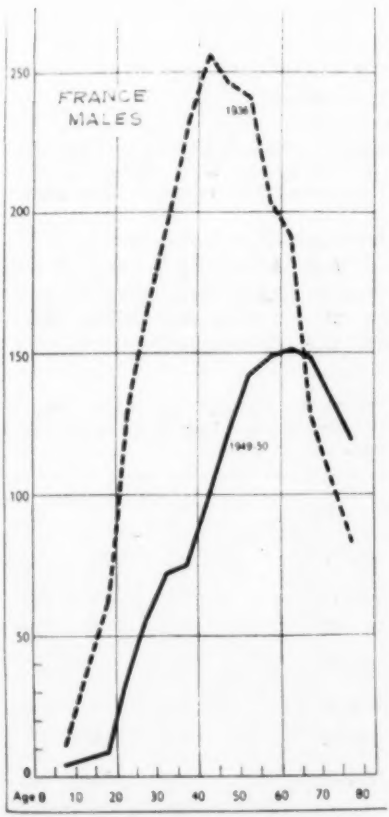


Figure 6—Deaths per 100,000, Respiratory Tuberculosis in Males, by Age, France, 1936 and 1949–1950 [8]

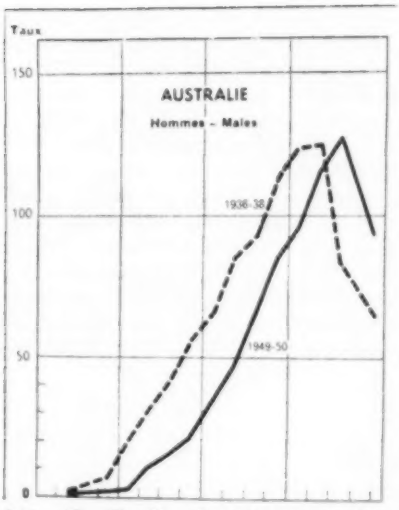


Figure 7—Deaths per 100,000, Respiratory Tuberculosis in Males, by Age, Australia, 1936–1938 and 1949–1950 [8]

clined from 76.0 to 36.0 for men 65–74, and from 76.8 to 43.5 for men 75 and over. In England and Wales, similarly, the rate for older men declined from 1912 to 1938, then increased until 1951, after which it began to decline once again.[5, 6, 9] The Norwegian rates for older men likewise declined during the twenties and thirties, but showed an increase for those 70 and over during the forties.[8, 10] While these data are fragmentary, they are inconsistent with the explanation offered in the WHO report.

Can the increase in tuberculosis mortality of older men during the forties be explained on the basis of cohort analysis? Frost and other investigators have used this method to demonstrate that each cohort, that is the population born in a given decade, experiences its greatest mortality from tuberculosis in early adult life. Frost concluded on the basis of his studies that "the present-day 'peak' of mortality in late life does not represent postponement of maximum risk to a later period, but rather would seem to indicate that the present high rates in old age are the residuals of higher rates in earlier life." [11]

It should be clear that Frost used cohort analysis to explain the relative increase in tuberculosis mortality among older persons in recent decades, that is,

Table 6—England and Wales. Males. Tuberculosis, All Forms. Mean Annual Mortality per 100,000 Living at Various Ages in Decennial Periods 1851–1940

Decennium	Age (Years)								
	0–	5–	15–	25–	35–	45–	55–	65–	75–
1851–60	632	119	344	416	412	396	348	257	106
1861–70	602	109	321	421	424	397	343	217	74
1871–80	580	83	254	378	420	393	328	202	65
1881–90	500	72	201	316	368	361	303	191	73
1891–1900	435	61	162	254	325	330	277	171	63
1901–10	313	55	137	216	262	293	257	169	67
1911–20	188	54	131	184	220	234	214	139	58
1921–30	105	32	111	140	164	173	146	96	39
1931–40	61	18	80	91	114	139	129	81	35

relative to other age groups. It cannot explain the absolute increase in older men in the forties unless we can demonstrate that this particular cohort experienced unusually high tuberculosis death rates in earlier life as compared with other cohorts. Table 6 taken from Springett [12] casts some light on this issue.

In England and Wales, there was an increase during the forties in the tuberculosis mortality of men 65 and over. In the table, we have underlined the mortality rates in previous decades for the cohort aged 65–74 in 1941–1950. It will be seen that this cohort did not experience unusually high tuberculosis death rates in earlier life as compared with other cohorts. This observation can also be made for the cohort aged 75 and over in 1941–1950. We must conclude, therefore, that at least for England and Wales, cohort analysis cannot explain the rise in tuberculosis mortality in older men during the forties. Examination of Springett's cohort tables for males in Scotland and Norway lead to similar conclusions; his data for Ireland, on the other hand, indicate that unusually high rates in earlier life may well have been a factor in the recent increase in mortality of older men.

While cohort analysis per se cannot provide a satisfactory explanation for the increase noted in older males during the forties, it does, we believe, help us to understand this phenomenon. In our opinion the increase in tuberculosis mortality rates of older men from 1940 to 1950 was a direct result of the Second World War. This was a period in which many older men went back to work in war and other industries, thereby placing additional strains on their capacity to resist endogenous or exogenous tuberculosis infection. In the countries most seriously affected by the war, additional strains on resistance were caused by nutritional deficiencies. Opportunities for contact with tuberculosis also increased during the war period. We are inclined to believe that older men reacted more unfavorably than other groups to these adverse circumstances, not only because their general resistance to infection was poorer, but also because more of them carried within themselves old tuberculosis infections which were reactivated as the environmental stresses of increased work and, in some countries, inadequate nutrition lowered their resistance. Data already cited appear to indicate that, with the return to the preexisting work pattern for older men, the improvement of living standards and the current widespread use of improved methods of therapy, there has again occurred a decline in the tuberculosis death rates of older men. It does not seem too bold therefore to predict that the present downward trend will continue.

Summary

During the decade from 1940 to 1950 there occurred an increase in tuberculosis mortality rates of older men in Upstate New York, many large cities of the United States, Hawaii, England and Wales, many countries of Western Europe, Australia, and New Zealand.

Various explanations for this widespread phenomenon have been examined. It is concluded that the most likely explanation is that the increase was a temporary one caused by the Second World War. During this period older men returned to work in industry and their resistance to tuberculosis was thereby lowered. In some countries, in addition, nutritional deficiencies served to lower resistance. As a result of population movements, exposure to tuberculosis also increased. It is postulated that older men reacted more unfavorably to adverse environmental conditions, not only because their general resistance to infection was poorer, but also because they carried within themselves a greater

number of old tuberculosis infections which were reactivated.

Recent data appear to indicate that the long-term decline in tuberculosis mortality among older men, interrupted during the forties, is being re-established as the abnormal situation created by the Second World War disappears and improved methods of therapy take effect.

REFERENCES

1. Annual Reports, Volume 2. Albany, N. Y.: New York State Department of Health, 1930, 1940, 1949.
2. National Office of Vital Statistics. Death Rates by Age, Race, and Sex, United States, 1900-1953: Tuberculosis, All Forms. Vital Statist. Special Rep. 43:19-33, 1956.
3. Department of Commerce, Bureau of the Census. Tuberculosis Mortality in Major Cities, United States, 1942-43. Ibid. 21:237-281, 1945.
4. Walker, H. H. Tuberculosis in Hawaii. Am. Rev. Tuberc. 68:839-862, 1953.
5. Stocks, Percy. "Recent Morbidity and Mortality Statistics," in Modern Practice in Tuberculosis. T. H. Sellors and J. L. Livingstone (Eds.). London, England: Butterworth, 1952, vol. 1.
6. Wilkins, E. G. Incidence and Onset of Tuberculosis in Old Men. Brit. M. J. 1:883-886, 1956.
7. McDonald, J. C., and Springett, V. H. The Decline of Tuberculosis Mortality in Western Europe. Brit. M. Bull. 10:77-81, 1954.
8. Annual Epidemiological and Vital Statistics, 1950. World Health Organization, 1953.
9. The Registrar General's Statistical Review of England and Wales for the Year 1931. London, 1934, No. 11.
10. Ostenfeld, Heitman, and Neander. Tuberculosis in Denmark, Norway and Sweden. League of Nations, Health Organization, Geneva, 1931.
11. Frost, W. H. "The Age Selection of Mortality from Tuberculosis in Successive Decades," in Papers of Wade Hampton Frost, M.D. K. F. Maxcy (Ed.). New York: Commonwealth Fund, 1941.
12. Springett, V. H. A Comparative Study of Tuberculosis Mortality Rates. J. Hyg. 48:361-395, 1950.

Dr. Monk is associate in preventive medicine and public health and research associate in postgraduate education and Dr. Terris is associate professor of preventive medicine and public health and assistant dean for postgraduate education, University of Buffalo School of Medicine, Buffalo, N. Y.

"On the facade of the fine building of the London School of Hygiene and Tropical Medicine are carved the names of twenty-one sanitarians, physicians and other men of science who, by their contributions and works since the seventeenth century, have done most to advance public health and the prevention of disease. Here, in the company of Sydenham, Pringle, Jenner, Farr, Chadwick, Simon, Pettenkofer, Pasteur, Koch, Lister, Laveran, Reed, Gorgas, and other great names is inscribed the name of Hermann M. Biggs. If Bellevue had graduated no other student than Hermann Biggs it would still have a claim to fame. . . . On January 1, 1914, Biggs became state commissioner of health. New York's excellent health record dates almost from the day of his appointment. . . .

"Hermann Biggs was a great and tireless physician, a servant of humankind, the kind of doctor who enobles the medical profession. He stimulated and enlightened generations of students. From him they gained a vision of scientific penetration tempered by sympathy. Yet it was as a public health genius that he contributed most. In this field he towered above the rest."—(Hospital City, by John Starr, Crown Publishers, Inc., New York, 1957, p. 149, et seq.)

Health education is everybody's business is the theme of this paper. Based on experience in the international sphere, the author calls on us to practice what we preach.

THE FUTURE OF HEALTH EDUCATION IN THE LIGHT OF THE CONCEPT OF THE INTERDEPENDENCE OF NATIONS

Theron H. Butterworth, Ph.D., M.S.P.H., F.A.P.H.A.

THE WORLD'S concept of the interdependence of nations has changed. This is a fact which must be accepted. The world has shrunk. Today, we can no more ignore our international neighbors than we can ignore our over-the-back-fence neighbors. We can not even move away—not quiet yet—not until man lands on Venus or the moon.

Acceptance of this concept has made possible, among other things, the great international programs operated by the U. S. Foreign Operations Administration, the Institute of Inter-American Affairs, the Colombo Plan, the United Nations constellation of associated specialized agencies, and similar units. With these programs a new factor had been added to foreign aid. In addition to materials and funds, ideas, skills, and technical know-how were now available for distribution to those who needed and asked for them.

One aspect of this exchange has been the health education of the public. Ideas, practices, largely developed in the United States through agricultural extension services, adult education, and community health education programs, have been spread to the corners of the world. As these ideas and practices moved out, they met other practices and ideas, often with similar goals, those of improving health. There has been action and reaction. In many countries health education has begun to develop with renewed vigor partaking of the heritage of the national program and flavored with ideas from abroad. The net result has not always been identical with either of the original programs. Dr. Karifa Smart, of Sierra Leone, once said in Geneva, "Speaking for my native Africa I implore you to send us tested seeds—not potted plants." This in general has been the direction taken in developing health education abroad. In a personal letter Lynford Keyes, health education consultant for the World Health Organization in the Western Pacific Regional Office writes, "Although there is always a tendency to transplant methods and techniques which have been successful in one country, to others, the efforts of WHO have been directed to the encouragement of study, experimentation, and demonstration by the health authorities in each country to discover the most effective ways to apply the basic principles of health education to their own unique needs and problems."

What are some of the characteristics of health education as it has developed outside the United States, thanks to the concept of the interdependence of nations? The first characteristic is an

emphasis on health education, not on health educators. Ten years ago few countries outside the United States had any health educators in the sense of specially trained professional persons. Those who held the title of health educator and who carried on the beginnings of this work were usually medical officers of health, physicians, and publicity specialists. Often the unit in which they worked was called the "Health Propaganda Section" and was just that. While it is true that a few persons from some countries have received specialized training, it is equally true that the development of health education abroad has not waited upon the development of a cadre of professionally trained specialists. It has developed as a vital interest and responsibility of existing staffs of health organizations, of the physicians, nurses, health visitors, sanitary officers, social workers, and teachers already involved in health work.

The World Health Organization and the U. S. Point IV Program have given consultation in health education in many countries, but this has been done with a minimum of staff. In response to the many requests for lend-lease personnel they did not recruit large numbers of health educators for overseas assignments. Rather, they concentrated on developing situations in which existing staff could learn to do a better educational job as a part of their regular work assignment. Training in health education, as contrasted to training of health educators, has been one of the important contributions of international organizations.

This training has ranged from the informal training of a few days' duration to formal academic education in graduate schools of public health. The countries have demanded health education training for all health personnel. So we find at the School of Public Health, American University, Beirut, Lebanon, instruction in health education being given to the entire graduate body, including majors in public health administration, hospital administration, environmental sanitation, nursing and laboratory technology, as well as to the 12 students who are specializing in public health education.

At the All-India Institute for Public Health and Hygiene in Calcutta, India, health education is given as a regular required course to physicians, nurses, sanitary engineers, nutritionists, administrators of maternal and child welfare services, and to industrial hygiene specialists taking graduate training in this institution. A three-month certificate course in health education was established in 1956, but a full diploma course to train professional health educators at the graduate level has, so far as I am aware, not yet been developed.

During three summer courses at the Institute of Hygiene in Ankara, Turkey, health education has been a part of the curriculum and the World Health Organization has provided consultant services for courses in health education at recognized institutions in the United Kingdom, Sweden, Yugoslavia, the Philippines, Mexico, and Singapore, where a course is given to school teachers as well as to graduate students of public health. Similar instruction is given in some South American countries, notably Chile and Brazil. I believe I am correct that health education instruction is an integral and important part of the core curriculum in all schools of public health in every country where they exist except the United States.

At a lower academic level training has been given, with assistance from the World Health Organization, in Ceylon, Burma, India, Viet Nam, Taiwan, and the Philippines, for various categories of health workers. An eight-week intensive course in health education was given in Noumea, New Caledonia, under the joint auspices of the South Pacific Commission and the World Health Or-

ganization in 1956. Forty trainees attended from the Pacific Islands and territories. They included not health education specialists, but assistant medical practitioners, nurses, sanitary inspectors, and teachers.

This emphasis on training various health personnel does not mean there is no need for a few professionally trained health education specialists. A modest number has already been trained and others are in training under national and international fellowships. These will take top leadership posts in government health or education departments, school systems, and in various health agencies and training institutions. The point is that health education is being developed on a broad base, as an accepted responsibility of all health personnel. For this responsibility the need for specialized professional training is recognized. It is of note in passing that an unpublished World Health Organization report on health education, after discussing the continued need for specialized personnel, states, "Assistance with the health education training of health workers, school teachers and others has become recognized as one of the principle functions of qualified health educators."

Now it may be argued that this is all very well for so-called underdeveloped countries, but not for us. Yet I wonder whether some of our problems do not stem from a failure to recognize that health education is indeed every health worker's business. Characteristically, in other countries health education is recognized as an essential element of a public health program. With existing shortages of professional personnel, ministries of health must look to programs which educate the villager to assume a large measure of the responsibility for protecting his own health. The public health aspects of the immense community development programs in countries such as Egypt, India, and the Philippines are based on educating the villager in desirable health habits. In the early stages of their modern development, national governments are creating bureaus and divisions of health education. Governments are willing to underwrite professional training in health education and to appropriate budgets to carry on the expanding program to the extent of their ability. There is no argument about the need or of the desirability.

The experience of the World Health Organization testifies to the importance attached by those in controlling positions in health agencies of member governments. They have approved, and assisted in the planning and conduct, of multi-country seminars of from one to three weeks in Central America, South America, Africa, the Philippines, and two in Europe. One is now being planned for the Eastern Mediterranean area and another is being considered for the Western Pacific for 1959.

Several WHO regional committees, composed of government representatives, in the face of the many urgent problems before them in the area of disease control and health improvement, have elected health education as the subject of the technical discussion held in connection with their annual regional meetings. The countries of Southeast Asia have twice elected to do this. The World Health Assembly has chosen health education as its topic for technical discussion for the 12th Annual Assembly. The importance attached to health education of the public by ministries of health in many countries of Europe, the Mediterranean area, Africa, Asia, and the Pacific (other regions, that is, than North America) seems to surpass that found in this country. These conferences and seminars are frequently attended by top-ranking officials who consider it not beneath their dignity, and worthy of the expenditure of funds, to travel long distances to attend them.

Participants at seminars have included teachers, administrators in the field of

clinical medicine, medical education, nursing, public health administration, health education, public health training, social psychology, anthropology, psychiatry, adult education, school administration, and sanitary engineering. In fact, there has not yet been, so far as I am aware, an international meeting on health education, which has been attended predominantly by persons with specialized training in this profession. Furthermore, most of the national meetings held in countries other than the United States have been multidisciplinary affairs.

Another characteristic of health education abroad is its apparent readiness to accept the assistance to be derived from close association with social scientists. They are well represented at meetings and seminars, are consulted in planning, and more and more frequently appear as members of field service teams where they are rendering valuable assistance in helping the health practitioner to understand the social and cultural problems which face him.

The World Health Organization has employed four full-time cultural anthropologists, among other social scientists, for periods of service for one year or more. They have worked at headquarters in Geneva, in a regional office, and in field projects. The terms of reference of the consultant in anthropology in the zone office in Guatemala will illustrate the general contribution which the anthropologists have made to health programs, namely, to carry out "anthropological surveys and studies of current health education problems in Central America and Panama and to obtain cultural data which will enable the countries to adjust their health programs to the needs of the population." An interesting infant feeding study has been made by an anthropologist in Indonesia and the work of another in Peru has been most productive. The health education seminar for Africa at Dakar was developed and conducted with the able assistance of a cultural anthropologist.

A corollary to this is that in the development of health programs in many countries outside the United States today more attention seems to be given to serious consideration of the cultural and social factors involved. This is in part in consequence of the higher degree of contrast which exists when persons begin to work in a country other than their own. Nevertheless, the cultural factors exist right here at home and failure to take them into account is often our undoing. Koos points this out in "The Health of Regionville." But far too frequently those planning a program make assumptions about the knowledge, understanding, and feelings of those whom they wish to educate—which is a far cry from reality. We have not yet become skilled in tailoring our program to fit those we wish to affect. We have not yet really accepted the idea that the other chap is different. We have good pegs of various shapes and plenty of holes with varied shapes, but we shut our eyes when we try to put the pegs in the holes and say, "they are all pegs and holes, get them together and they are bound to fit."

Finally, I believe that some advances are being made abroad in cooperative planning. Some countries are working together in the field of health more closely than some counties do here. Interagency programs involving health education are operating. The running is not always smooth. The millennium is not yet here, but the programs are off the ground. The Fundamental Education Programs sponsored by UNESCO with assistance from several of the United Nations specialized agencies are an example. The planning of international conferences in health education has involved detailed intercountry and interagency planning. Personal visits, sometimes twice, to each country involved, have been made in order to sit

down, frequently with multiagency committees, to do preliminary planning. This has involved time and money. It has taken well over a year to develop some regional conferences. But the satisfactory results substantiate the work. Too often we make a plan and then call in three friends to help us carry it out. And that is exactly what they do. They carry it out and bury it. It was not of their making. Abroad at least people are trying earnestly to work together.

I have listed several factors which seem to characterize health education developments abroad. The same factors operate at home, but I feel they do so at a lesser intensity. The factors are more obvious abroad because the conditions encountered are different, but I believe also that we need to consider them as related to back home programs.

My topic is, "What of the Future?" What of the future for health education in the United States in view of the programs abroad made possible as a result of present-day concepts of national interdependence? I would think that the overseas programs, as they become known to us through travel and reports and participation, would mean an enrichment. At least that would be my hope. Do we not need to stop and consider some of the characteristics of health education programs developing abroad where, because of obvious cultural differences, problems, and technics, stand out in high relief, and ask ourselves if we are doing the best we can and should at home? Do we recognize the same problems when we meet them on "Main Street?" Have we been too defensive about professional health educators? Are we still finding it hard to get in and as hard to stay in sometimes, because we have not made health education a part of the other team members' work and they feel no particular responsibility for it? Have we held section meetings and conferences and seminars to explore our own umbilicus when we might better have invited our professional assistants and neighbors? Do we really believe that Mrs. Jones, white, 37, and married may not respond to a health appeal in exactly the way we do, even though we too, are, a white, female, married, and 36 and a half? Do we understand what Koos is saying in his book and are we convinced that it is not weakness on our part to ask a social scientist for help on a social problem any more than it is weakness to ask the sanitary engineer how high-temperature, short-time milk pasteurization equipment works? Do we practice what we preach? Well, I leave these questions with you. They are related, at least in my mind, to the future.

What of the future, because of the many health educators and others in health work who have been on international assignments for periods ranging from weeks to years; who have attended international conferences, meetings of the International Union for Health Education of the Public, or perhaps have only heard some speaker tell his experiences of such affairs? I hope that all this means heightened sensitivity to essentials, sharpened perceptions of basic principles, and their practical application. I hope so. For the principles are the same in India, Patagonia, or Cross Roads, Kans.; but in India and Patagonia we are looking for them and there is an exaggerated contrast which sets them out conspicuously. In India, of course, you make inquiries related to health needs because you are unfamiliar with them. Of course, you find out all you can about the villagers, their interests and religion and social customs, because it is so obviously necessary. In India, of course, you try out the language of your poster on a villager because you are not sure how it may be interpreted. Of course, you respect religious ideals and set your meetings to be convenient to the family work pattern and plan it with the village chief because it is so

obvious—after all, you are not stupid. But what about back home?

And now, one last point. The interdependence of nations, which has made possible the vast international programs with the extensive exchange of professional personnel, is also developing, on a very personal basis, an understanding of how the other person lives. All over this world professional people who respect each other's professional ability are working, literally side-by-side, at common problems. This leads to interest in a companion as a person and to an interest in his country. Starting with a professional team relationship and a common problem many friendships, on an international basis, have developed in a way that has not happened before.

International understanding is a by-product of international lend-lease. And international understanding on a personalized basis is a first step toward international peace. "Communism will win out over capitalism inevitably, independent of men's will," says Mao Tze-tung. Does this have anything to do with the future of health education? Do we who believe in the dignity of man, the value of the individual, and the democratic process—have we here a challenge?

I would like to share with you a hope I have that has been expressed by Dr. Frank Graham in far better language than I am capable of using. Dr. Graham, when he made these comments, did so in terms of our own country. I have slightly altered his words to have them apply to the world and I feel confident that he would not object to such tampering with his words. Dr. Graham had a hope, and I have a hope, "that as we work for health and education we will always struggle to make our world a world in which there is always freedom to struggle for freedom, and health, and education; a world where we would achieve a democracy without vulgarity and excellence without arrogance; where the answer to error is not terror; and where the response to a difference in color or race or creed or health or economic condition is not a sense of superiority, or discrimination, or exploitation. We hope that this may be a world where the way of progress is not subversion. Respect for the past is not reaction and hope for the future is not violent revolution. We would have it a world where the majority is without tyranny, the minority without fear, and all the people have the hope of working together for a freer and more peaceful and healthful world."

Health education has a share of the responsibility for the realization of this hope. What of the future? The opportunity is here—the signposts are clear—the privilege to act is ours.

Dr. Butterworth is health education consultant, National Society for Crippled Children and Adults, New York, N. Y., and was for four years deputy chief, Health Education of the Public Section, World Health Organization, Geneva, Switzerland.

This paper was presented before the Public Health Education Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 14, 1957.

How can health education in schools become a potent force in protecting and improving the health of our children? The problem of securing public support and of developing status for this important subject is examined here.

BUILDING STATUS AND PUBLIC SUPPORT FOR HEALTH TEACHING IN SCHOOLS

Bernice R. Moss, Ed.D.

THE TITLE of this paper suggests a dilemma based on an assumption. The assumption is that health teaching lacks status and public support and that something needs to be done to build both. The dilemma is to decide whether public support is needed to achieve status or whether status engenders public support.

As one views this situation, he is led to recognize that public support for at least certain aspects of health and safety education has been marked and has expressed itself in the passage of legislation. The health of children and youth is a national concern. When factors deleterious to health or dangerous to life are identified there has been a tendency to pass a law requiring that the schools do something about it. Public pressures have been exercised to place laws on the books of nearly every state which require the teaching of the effects of alcohol and narcotics. Agitation is now going on in some quarters to pass similar laws to alert young people to the dangers of cigarette smoking. Driver education has been legislated in many states. Laws require the inclusion of fire prevention, sanitation, control of disease, and other specific health areas in some states. Physical education laws were passed on the assumption that physical activity would build health and fitness in the nation's youth. Health education or physiology and hygiene (in older terminology) are required by law in many states. What other area of education has been as commonly a concern of the elected representatives of the people? With the possible exception of requirements relative to the teaching of American history and citizenship, no area of the school curriculum is more firmly rooted in legislative enactments.

It is true that passing a law does not always create a program, but certainly the existence of these laws is evidence of public concern and support for the inclusion of health and safety in the school curriculum. Perhaps the absence of health teaching in many schools is due more to lack of training and professional guidance, reflected in a poorly organized curriculum and desultory classes, rather than to lack of interest on the part of the public. In many instances the mandate is there. The challenge is to conscientiously fulfill it.

Status for health education within the school curriculum depends on a variety of factors. The force of academic tradition is still a potent influence in the determination of curricular offerings, and in terms of academic respectability, health teaching is a "Johnny come

lately." Mathematics, science, languages, history, and government are the "solids" of the high school curriculum and by hoary tradition the armamentarium of the educated man. Art and music are included as essentials for the cultural life, but "practical" education, vocational subjects, physical education, and health are scarcely worthy of concern except for students whose intellectual abilities are below average.

Another factor which has militated against inclusion of health education in the curriculum is the confusion which exists as to the nature and scope of this instructional field. To some it is synonymous with physical education; others think of health teaching as consisting of a few simple rules of personal hygiene. In some schools it has become driver education or first aid; in others a course in family life education. Perhaps some status for health teaching in the curriculum was lost when the older term "physiology and hygiene" was replaced with "health education." Physiology implies some knowledge of the human body and, unfortunately, this basic underpinning for health education has all but been lost in health education classes.

The implication of these observations is that health teaching lacks status. This is by no means a universal situation, but is unfortunately too often true. How can one build status and thus develop or justify public support? Must one have public support in order to achieve status? Or do they go hand-in-hand and simultaneously emerge? Instead of further pursuing the dilemma, let us look at some of the ways for achieving both goals in order that health education may become a potent force in the protection and improvement of health and the enrichment of life of our children and youth.

Status and support for health teaching in schools are more likely to occur in those communities where teachers and administrators are doing a good job. The school administrator who is convinced that health education is an essential component of a school curriculum and makes adequate provision for including it will create the opportunity for teachers to adequately function in this field. If he provides time, classrooms, teaching materials, academic credit, and above all a trained teacher, he will go a long way toward achieving status and support for the program. If he pawns health teaching off to the physical education teachers to work in as best they can, provides no textbooks or library materials, assigns reduced credit because it is not a "solid" subject, uses a discredited coach as a health teacher so he can hire a new football hero from the state university without firing the old coach, his health education will neither achieve nor deserve status or public support. An enlightened and enthusiastic school administrator is basic in the development of a good program.

At that, he can only create the situation in which the teacher will function, and the worth of health education to the children will be determined by the quality of the instruction. A good teacher is the most important single factor in proving the worth of the program. Teachers trained in health education are needed in both elementary and secondary schools.

The elementary teacher will not be a health specialist but a generalist who recognizes, values, and includes health within his total teaching assignment. He will be aware of the health needs and interests of children through his understanding of child growth and development and of the social, economic, and cultural backgrounds of his group. He will use his powers of observation and study to uncover their particular health problems and needs. He will weave his health instruction into his curricular offering in a meaningful and functional fashion. He will develop within children an understanding, appreciation, and

respect for the human organism based on sound scientific concepts. He will stimulate and guide behavior into acceptable biological and social patterns, enabling the child more nearly to achieve his potential in growth, vigor, vitality, and adjustment.

The secondary teacher of health will be more likely to succeed if he is adequately trained in health education as a special field. He must be grounded in scientific fact and skilled in teaching method. Health education is an applied science which draws from the basic physical, biological, and social sciences those concepts and understandings important in human survival, development, and adjustment. Skill in the application of these concepts to the needs, interests, and aspirations of adolescents demands training and insight. Not just anyone can "teach health," nor inspire and motivate young people to live in accord with sound biological, psychological, and social principles.

In those situations where administrative arrangement and support are coupled with teaching competence health education will achieve status in the minds of the pupils and through them in the attitudes of the community. Parents are pleased when school experiences produce positive results in the thinking, feeling, and behavior of their children. The child whose health behavior is improved, the youth whose intellectual curiosity is aroused, the boy or girl who has a deeper understanding of himself in relation to others—these are the best evidences of the effectiveness of the program, and they build understanding and support for it.

Where do communities secure the enthusiastic administrators and trained teachers to do this important job? Some are developed on the job and as a result of a variety of experiences. Inservice education, personal experiences, contacts, and individual study may all spark interest and program improvement. The primary source of trained educators is the teacher education institution, and it is here that evaluation and reorientation of programs are often needed. Health of the individual and of the community is almost universally accepted as being an aim of education and yet in the preparation of teachers and administrators it frequently has a low priority. Teacher education curriculums are under constant study and much reorganization has been and is taking place. In this process the health objective of education can be subjected to scrutiny and better ways of training teachers and administrators to fulfill their health responsibilities can be developed. When health education has little or no status in a teacher education institution it is not likely to be held in high regard by prospective teachers or to be reflected in their subsequent work in the public schools.

Given a situation where school administrators and teachers are inadequately trained and not particularly interested in health education and where the schools are doing little or nothing, what steps may be helpful in bringing about change? Someone or some group within the community must become sufficiently interested to begin asking questions concerning health teaching in the schools. It may be the Parent-Teacher Association, the school health committee of the county medical society, the community health or welfare council, one of the voluntary health agency boards, or even some influential citizen. Interest grows as more people become aware of the questions being asked. Eventually a request may be made to the school superintendent or principal to supply information relative to the program. In some instances the request may go to the local school board. Judgment on the extent and nature of the program should be withheld until the appropriate school officials have had an opportunity to reply to the request for information.

A conference with school officials

would be in order where the problem could be discussed. Care must exist to avoid the common pressure group tactics of trying to convince a principal or superintendent that some special unit or topic should be immediately added to the school curriculum or that the community group has a blueprint for health teaching in the schools. An expression of interest in program improvement and a willingness on the part of a representative community group to work with the schools in studying their problems would be much more effective in bringing about constructive change. Expert consultant help may prove to be an invaluable asset in a situation of this type.

Change within the teacher education institution often results when school administrators begin asking for trained health education personnel. If schools want health educators on their staffs, colleges will supply them. It is unrealistic to expect colleges to train persons for nonexistent positions. Better training of all teachers and school administrators in health may be facilitated by state-wide conferences of representatives of teacher education institutions meeting with interested public school, public health, and community agency personnel. Such conferences could be initiated by state health councils, state PTA councils, state accrediting agencies, or the institutions themselves. The process of evaluation and reorientation of teacher education can become responsive to the wishes of the public provided that these interests are sincere and that they are based on sound premises.

The public school curriculum is likewise responsive to the will of the people. Witness the growth of driver education in the secondary schools. When a society really values health, provision will be made to secure this goal for the young. Again, witness the dollars which are voluntarily contributed to prevent and treat crippling diseases of children and youth. In order that public interest and concern may be directed into the most fruitful channels of expression, interpretation of the broad health needs of the child and of society may be essential. Otherwise public support may be developed for a piecemeal, shot-gun program of health education. Here, again, the various health-oriented groups in the community may be of real service in interpreting the values of a sound school health education program to the general public. People must be helped to see that there is no magic formula—no one-shot procedure that is going to protect life and promote health. It must be recognized that the health attitudes and behavior of the people grow out of the cultures in which they live and that children's behavior reflects the attitudes and beliefs of their parents. Modification of such attitudes and behavior depends on more than knowledge alone and the schools cannot work miracles. Given an opportunity they can help to bring about change, and it is for that opportunity the enlightened public support is needed. Status accrues as the program proves its worth in the lives of the children and in improved health of the community.

Dr. Moss is public health adviser, Program Development Branch, Division of General Health Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

This paper was presented before the School Health Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 12, 1957.

Technologic developments in food processing, particularly the application of freezing and irradiation, make it essential that public health workers understand the changing situation. Here is an overview of this problem with special attention to bacterial contamination.

FREEZING AND IRRADIATION

John T. R. Nickerson, Ph.D., F.A.P.H.A.; Bernard E. Proctor, Ph.D., F.A.P.H.A.; and S. A. Goldblith, Ph.D.

ALTHOUGH THE preservation of foods by freezing has been an established commercial enterprise since the early 1930's of this century, it is a comparatively new industrial method of food processing. The quantity of frozen foods produced each year has increased greatly during the last decade and greater increases are indicated for the future.

Frozen foods are not sterile and if grossly mishandled may serve as a medium for the growth of bacteria of the numerous types usually present. Eventually, under such conditions, foods may become decomposed or support the growth of bacteria which might be detrimental to health. For this reason, at various times since quick freezing was introduced, the significance of frozen foods in transmitting disease has been a controversial subject.

A method of food processing involving the treatment of comestibles with ionizing radiations has been developed in recent years. While this process has not yet been used commercially, there is some possibility that it may have industrial application to foods within the next decade. As with frozen products, the manner in which the public health is affected by the ingestion of foods preserved by irradiation treatment should be given thorough consideration.

Of greatest importance to public health regarding frozen foods is the possibility that those foods, which would serve as suitable media, might be handled in such a manner as to provide for the growth of Clostridium botulinum, Micrococcus pyogenes var. aureus, or bacteria of the Salmonella group. Other bacteria may be the cause of food intoxications or food infections, but most frequently the bacterial groups previously named have been involved.

The bacteria in foods are destroyed to some extent by freezing and during storage at temperatures below freezing. While this is the case, it is well known that freezing and normal storage periods at temperatures below freezing do not destroy all bacteria, even of the types which cause food-borne epidemics, which may be present in foods.

Cl. botulinum, Staphylococci, and the Salmonella bacteria will not grow in foods which are held in the frozen state. If, therefore, frozen foods become associated with the transmission of diseases, growth of the bacteria involved must have taken place prior to freezing or after the product was defrosted.

Concerning the growth of Cl. botuli-

num in foods inoculated with this organism after freezing and defrosting, the literature [1] indicates that no toxin is produced in acid foods held at temperatures as high as 68° F. In nonacid inoculated foods it has been found that there may be occasional formation of toxin at 50° F, but toxin is not produced at 41° F or below.

Different results have recently been obtained in Australia [2] where it has been found that Cl. botulinum, Type E, did produce toxin at 41° F. However, in this case growth and toxin production were obtained in a prepared, inoculated medium.

Experiments with uninoculated vegetables [3] would indicate the probability of growth of Cl. botulinum with toxin production is not very great, even when such products are held at temperatures as high as 70° F. One of the factors involved here is the development of acid-forming bacteria. These organisms tend to establish the first growth in products of this kind, thereby creating conditions which are not favorable to the development of anaerobic, spore-forming bacteria of the putrefactive type.

Public health records indicate that the probability is remote that commercial frozen foods will be involved in any outbreak of botulism. Since the advent of quick freezing, more than 25 years ago, something like 40 billion pounds of frozen foods have been produced commercially as institutional or retail products. There has been no case of botulism reported as due to the consumption of these foods.

Actually, only one case of botulism has been reported as the result of consumption of any kind of frozen foods and this involved fish which was prepared at home, packaged under noncommercial conditions, and frozen in a locker plant. Botulism, then, has been only a minor problem even with home-prepared and frozen foods.

It has been well established that M. pyogenes var. aureus will not grow in food products which are held at temperatures below 50° F. It has been shown [4] that toxigenic staphylococci may be present in frozen food products. Also, Staphylococcus food poisoning is known to have been caused by the consumption of ice cream. Freezing and storage at low temperatures cannot, therefore, be depended upon either to destroy the organism or to inactivate the toxin it produces. Yet, there has been no case of Staphylococcus food poisoning reported in the literature as caused by the consumption of typical frozen foods. This would indicate an improbability that ordinary frozen foods, or ordinary foods which are to be frozen, will be handled in such a manner as to provide for a substantial growth of enterotoxic staphylococci.

Bacteria of the Salmonella group have been isolated from uninoculated egg products and poultry after freezing and storage in the frozen state. The public health record for frozen foods, moreover, is not as good in the case of salmonellosis as with botulism or Staphylococcus food poisoning. Several cases of salmonellosis have been reported in which the source of the infecting organism has been traced to frozen egg white, frozen whole eggs, or frozen poultry.

Compared to certain other methods of food processing, products preserved by freezing have not often been involved in the transmission of salmonellosis. However, it is obvious that, similar to fresh foods, certain types of frozen food materials may contain Salmonella bacteria and that these bacteria may increase to numbers which will cause human infection if the foods are not refrigerated at suitable temperatures before and after defrosting.

Some doubt was expressed in the early days of commercial food freezing as to the advisability of using hermetically sealed metal containers as packaging materials for frozen foods. It was

theorized that frozen foods packed in hermetically sealed containers might be more susceptible to the growth of anaerobic bacteria than those packed in paper or plastic materials. The work of Perry, et al.,[5] indicates that such is not the case. Also, for many years, the frozen food industries refrained from using rigid containers for fear that consumers might mistake products of this kind for sterile, heat-processed canned foods and, therefore, store them under conditions which would provide for the development of spoilage organisms. During the last several years a number of different types of commercial frozen food products have been packed in several types of hermetically sealed containers. This commercial experience indicates that the consumer in this country is unlikely to mistake frozen foods for heat-processed products regardless of the type of container used. There appears to be no reason why frozen foods should not be packed in hermetically sealed containers if it is expedient and economical to do so.

Precooked frozen foods, a recent development in the field, have been cited as the cause of special microbiological problems.[4] This is said to be due to the fact that the tissues of these products are soft and easily invaded by bacteria; such foods provide a better medium for the development of microorganisms and there are numerous chances for contamination during subsequent handling by human hands after precooking.

Actually, most frozen foods are readily invaded by bacteria before or after freezing whether or not they are precooked. The reason for this is that vegetables must be blanched prior to freezing, thus softening the tissues. Meat- and fish-type foods need not be blanched to provide suitable media for bacterial growth.

In some cases high bacterial counts have been encountered in precooked frozen foods. Precooked poultry products present one of the most frequent problems in this respect, because of contamination during and subsequent to the boning of cooked poultry.

It is evident that in some cases greater sanitary care is desirable during the boning and handling of cooked poultry. If adequate, well known, sanitary precautions are practiced and the product is handled in a sanitary manner from the standpoints of speed of operations and refrigeration of partly processed materials in the factory, only moderate increases in bacterial populations should be expected, with no resultant troubles.

While some precooked products, such as poultry, may present problems involving sanitation, other precooked foods can be handled in a sanitary manner with comparative ease. Those precooked frozen foods with which ingredients may be heated and placed in the final container without an intervening procedure, such as boning, can be handled so as to provide lower bacterial counts than most other types of frozen foods.

It is not considered that precooked frozen foods offer any special public health problems if prepared under properly informed supervision and there is no evidence to indicate that they should be regarded as dangerous in this respect. However, this class of frozen food products is undergoing a tremendous increase in volume. It is considered by some[6] that this type of product will soon account for the largest quantity of products among the several types of frozen foods. Since this may be the case and since marginal operators are attracted to the production of fast-moving products, it is suggested that the time has arrived for the frozen foods industry to set up sanitary standards and that these are especially necessary for precooked frozen food products.

In setting up such standards it is believed that, although these tests are

neither accurate nor precise, both the standard plate count and the total microscopic count can be used to advantage to grade the sanitary quality of raw materials and of the finished product.

In summarizing the situation of frozen foods in relation to public health it is evident that these comestibles are no more likely to be involved in causing food infections and food intoxications than are foods processed by other methods of preservation.

Prior to freezing, and after defrosting, frozen foods are subject to bacterial invasion. Like fresh foods, therefore, if frozen foods are handled under insanitary conditions and at temperatures which will provide for the growth of certain types of bacteria, they may be involved in human illness of one kind or another. The public health record to date indicates that the probability is not too great that frozen foods in commercial channels will be mishandled to this extent.

In order to further safeguard the health of those consuming these products it is believed that standards should be established to regulate the microbiological content of foods as evidenced by plate counts and total microscopic counts of frozen foods. This is especially necessary for precooked-type products.

Regarding the irradiation of foods in relation to public health, the chief consideration is whether this method of processing can be used to destroy bacteria in foods which might cause food infections or food intoxications.

If irradiation with cathode or gamma rays is to be used to completely sterilize food which may then be held at room temperature, fairly high dose levels will be necessary. In order to obtain a sterilizing effect comparable to that used in thermal processing with respect to the destruction of Cl. botulinum in some foods it would be necessary to use treatment levels of 4.8×10^6 rep (4.5×10^6 rad) or even higher. This dose requirement may vary with the moisture content of the irradiated food, the temperature of the product when irradiated, the size and shape of the container, the irradiation source (cathode or gamma rays), and with other factors.

Irradiation treatment of foods to obtain "pasteurization" effects would be carried out to destroy only the nonspore-forming type of bacteria. The radio resistance of Cl. botulinum is such that any attempt to destroy bacteria of this type would require a sterilizing dose.

In pasteurizing moist-type foods it is known that a dose of 400,000–500,000 rep (372,000–475,000 rad) would be necessary to bring about a reduction in the number of Salmonella bacteria equivalent to a decrease of 11 log cycles. In dried materials a dose of 850,000–1,200,000 rep (790,000–1,100,000 rad) would be necessary to obtain the same order of decrease in numbers of this organism.

Data on irradiation treatment of foods to destroy M. pyogenes var. aureus are not available, but it is believed that the dose requirement for this organism would be of approximately the same order as that of the Salmonella group for various type foods.

Dose requirements for the purpose of extending shelf life at temperatures of 36°–40° F of natural products, such as fish, meat, and vegetables, would be between 750,000 and 1×10^6 rep (700,000–930,000 rad). Ground beef, for instance, irradiated at 850,000, or at 1×10^6 rep, in hermetically sealed metal containers has been held for a period of four years at 36°–40° F without signs of bacterial spoilage.

Total sterilization of food products by treatment with cathode or gamma rays at levels as high as 4.8×10^6 rep appears at the present time to have possibilities only with certain meat, fish, and poultry products. Vegetables and fruits irradiated at such levels would be badly affected from the standpoint

of loss of natural flavors and the development of off-flavors.

While some products would be acceptable when irradiated at sterilization dose levels, irradiated foods are subject to changes during storage, especially at temperatures above 40° F. Some of these changes involve the action of proteolytic enzymes; others are concerned with oxidation, while the Maillard or browning reaction accounts for still another type of change.

Oxidation changes of this kind are usually associated with the rancidification of fats and could probably be avoided in large part in irradiated products by vacuum packing combined with some method of sequestering oxygen.

The prevention of proteolytic enzyme action in radiation sterilized foods presents a more difficult problem. This can be done by blanching, but the heating of flesh products to the extent required to inactivate proteolytic enzymes, brings about changes in the characteristics of the product. At the present time, this is one of the problems which remains to be solved in connection with the radiation-sterilization of food products.

Most of the methods of preventing the Maillard reaction are not applicable to flesh-type foods or are not suitable for completely sterilized products.

It has been indicated [7] that with some products browning in flesh foods may be due to a combination of amino acids and ribose, the ribose being liberated during post-mortem changes brought about by the action of nucleases. If this is the case, some combination of methods involving the inactivation of enzymes and the removal of sugars might be necessary to prevent changes in radiation sterilized foods due to browning.

Investigations dealing with the use of high-voltage cathode rays to destroy S. typhimurium and S. senftenberg in various types of egg products have been carried out. The results have indicated that egg white solids may be treated at levels required to bring about a 10,000,000-fold reduction in numbers of Salmonella without marked changes in the organoleptic or functional properties of these products. Liquid and frozen egg white is even less affected by the irradiation treatment required to destroy Salmonella, since the dose levels required to bring about a comparable destruction of organisms are lower in products of high-moisture content.

The irradiation treatment of whole egg and egg yolk products to destroy Salmonella bacteria has given less promising results than those obtained with egg white due to a greater induction of off-flavors at dose levels necessary to bring about a 10,000,000-fold reduction in the number of organisms. However, such products after irradiation treatment of this severity were found to be suitable for the preparation of cakes. It was also found that when liquid whole egg or yolk products were irradiated to destroy Salmonella and then spray dried the resulting products could be used to prepare either cakes or custards of acceptable quality.

As long ago as 1949, Alicata and Burr [8] showed that trichinae in pork may be destroyed with relatively low doses of ionizing radiations. Although trichinosis has long been a public health problem in this country, no attempt has been made to apply this process commercially.

One of the best possibilities for the application of irradiation treatment to foods is for extending storage life at refrigerator temperatures above freezing. Apparently, in high-moisture content materials, such as flesh foods, the dose which will destroy psychrophilic bacteria would also destroy food infection organisms and food intoxication organisms of the nonspore-forming type. Most flesh foods are not subject to rapid proteolysis at temperatures near 40° F;

neither is the Maillard reaction a problem at this temperature. This method could probably be used, therefore, to extend the storage life of certain commodities for periods of from one to six months in duration and at the same time provide products which were satisfactory according to public health standards, if radiation treatment does not affect wholesomeness.

One of the food items that has been found most sensitive to the effects of ionizing energy is milk and milk products. This is illustrated in Table 1.

The data in Table 1 indicate very definitely that, organoleptically, off-flavors may be detected in fluid whole milk at dosages of approximately 7,000–14,000 roentgens. The dose required for sterilization of fluid whole milk has been stated to be of the order of magnitude of 1,000,000 roentgens [9] and for dried milk products may be as high as 3,000,000 roentgens or more.

Table 1—Flavor Difference Threshold Doses for Milk and Cream Irradiated with High-Voltage Cathode Rays

Dairy Product	Difference Threshold Dose (rep x 10^{-3})
Fluid whole milk	
Raw	7.39
Pasteurized	6.03
Pasteurized and homogenized	14.29
Dry whole milk *	
Irrad. before rec.	59.68
Irrad. after rec.	20.79
Fluid skim milk	
Raw	16.72
Pasteurized	17.16
Dry skim milk *	
Irrad. before rec.	128.20
Irrad. after rec.	15.34
Other products	
Pasteurized, 1 per cent butter fat	9.32
Raw heavy cream	7.52
Homogenized evaporated milk *	27.37

* Reconstituted milk.

These data illustrate one of the most pressing problems concerned with the use of ionizing energy for sterilization of foods and food products—that is, the production of undesirable side reactions, such as changes in odor, flavor, color, etc.

Several methods have been developed for obviating these undesirable side reactions based on the mode of action of radiations on foods and food materials. These are:

1. Use of low temperatures (freezing)
2. Elimination of moisture
3. Lowering the oxygen content of the irradiated sample
4. Addition of compounds (free radical acceptors) to the material being irradiated.

Reduction of temperature reduces the diffusion rate of free radicals and is of help in minimizing some of the side reactions. Lowering the oxygen content and reducing the moisture content of irradiated foods aid through actually decreasing the number of oxidative free radicals. The addition of free radical scavengers is sometimes effective. Such compounds have greater affinity for the free radicals produced by the radiation than for the solute molecules which are responsible for the flavor and color of foods.

None of the four technics cited here has been found to be completely effective in obviating undesirable side effects.

Table 1 illustrates the effectiveness of reducing moisture content. If the threshold doses of fluid whole milk are compared with that for dried milk or fluid skim milk is compared to dry skim milk, it may be seen that the off-flavor difference threshold dose goes up by a factor of almost 10.

In addition, this table illustrates the fact that the fat components of milk contribute markedly to the off-flavor production due to irradiation, but the fat component of milk is not responsible

for all the off-flavor produced by irradiation.

Analysis of the fundamental direct and indirect effects of radiation indicates that the most desirable situation is achieved when the indirect effect is minimized to the greatest possible degree and the direct effect is utilized solely for the destruction of microorganisms.

Research in the authors' laboratories has also shown that, in milk, off-flavors induced by radiation do not occur spontaneously on irradiation, but proceed via a chain reaction, with a lag of roughly 30 seconds between the cessation of the radiation and the detection of off-flavors. It has also been found that some of the primary chemical compounds, produced by the reaction of milk with free radicals, were volatile.

Based on the hypothesis that volatile intermediates might be removed by low-temperature distillation during the irradiation process, a device has been designed to permit irradiation and distillation to occur concurrently. By this means, milk may be continuously irradiated in a vacuum at about 30° C. During the process of irradiation, volatile products are distilled and collected in cold traps, as indicated in the diagram of Figure 1.

One advantage of the new technic is that it permits a study of the volatile intermediates by means of vapor-phase chromatography, infrared analysis, and other modern analytical procedures. Another is that it has been possible to increase the threshold of off-flavor, induced by radiation, from a value of approximately 15,000 roentgens to well over 2,000,000 roentgens.

To date, laboratory progress has been very encouraging in successfully preserving milk by ionizing radiations without undesirable side reactions. Whether or not the laboratory results will be applicable to sterilization procedures on a commercial scale remains to be seen. Further research, using this technic with particle accelerators, is under way.

One of the other problems relating to the possible commercial utilization of

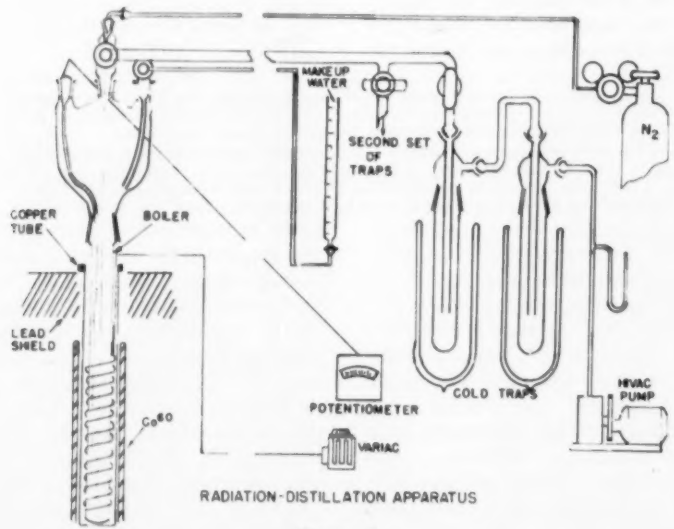


Figure 1

ionizing energy for foods is the possibility of induced toxicity in food materials treated by ionizing energy.

This is under extensive investigation at the present time at the Massachusetts Institute of Technology and in a number of laboratories throughout this country and abroad.

The Office of the Surgeon General of the Department of the Army is particularly active in this field and their investigations will have an important bearing on the future utilization of ionizing energy for the food sterilization program.

At the present time, there is no evidence that there is a toxicity induced in foods by treatment with ionizing radiations. However, further work is required to definitely establish this point.

One further point with respect to toxicity relates to possible induced radioactivity using high-energy electrons (above 10 mev). Thus far, research carried out in these laboratories (Rich and Goldblith, in press) indicate that there is no induced radioactivity using electrons at energy levels up to 16 mev.

In view of the fact that the Department of the Army is at the present time considering the utilization of electrons at energy levels as high as 24–25 mev, and also since the photoneutron production increases markedly above 12–16 mev for a number of nuclei, it is important that further research be conducted in this area in using electrons in the vicinity of 25 mev.

REFERENCES

1. Prescott, S. C., and Tanner, F. W. Microbiology in Relation to Food Preservation. Food Research 3:189–197, 1938.
2. Ohye, D. F., and Scott, W. J. Studies in the Physiology of Clostridium botulinum Type E. Australian J. Biol. Sc. 10, 1:85–94, 1957.
3. Sanderson, N. H., Jr. The Bacteriology and Sanitation of Quick Frozen Foods. Refrig. Eng. 42:228–232; Canner 92, 18:11–12, 24, 28, 1941.
4. Borgstrom, Georg. Microbiological Problems of Frozen Food Products. In "Advances in Food Research." Vol. VI. New York, N. Y.: Academic Press, 1955, pp. 163–230.
5. Perry, H.; Townsend, C. T.; Andersen, A. A.; and Berry, J. A. Studies on Clostridium botulinum in Frozen Pack Vegetables. Food Technol. 2:180–190, 1948.
6. Tressler, D. K., and Evers, C. F. The Freezing Preservation of Foods. Vol. II (3rd ed.). Westport, Conn.: Avi Publishing, 1957, pp. 1–2.
7. Tarr, H. L. A. Cause of the Browning of Certain Heat-Processed Fish Products. Fisheries Research Board of Canada, Progress Reports, No. 92, 1952, p. 23.
8. Alicata, J. E., and Burr, G. O. Preliminary Observations on the Biological Effects of Radiation on the Life Cycle of Trichinella spiralis. Science 109:595–596 (June 10), 1949.
9. Dunn, C. G.; Campbell, W. L.; Fram, H.; and Hutchins, A. Biological and Photo-Chemical Effects of High Energy, Electrostatically Produced Roentgen Rays and Cathode Rays. J. Applied Physiol. 19:605–616, 1948.

Dr. Nickerson is associate professor of food processing; Dr. Proctor is director, Food Technology Laboratories; and Dr. Goldblith is associate professor of food technology, Massachusetts Institute of Technology, Cambridge, Mass.

This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers and the Engineering and Sanitation and Food and Nutrition Sections of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 11, 1957.

As medical care becomes more complex, division of labor grows increasingly prominent. In turn, this development raises questions of the relation of newer technical personnel to the older professions. This discussion gets to the heart of the matter—the need to think in terms of comprehensive care.

AUXILIARY PERSONNEL IN MEDICAL PRACTICE

John L. Caughey, Jr., M.D.

IT IS not necessary or desirable for me in the limited available space to attempt a detailed discussion of the way auxiliary personnel are related to medical practice. The military services have defined literally hundreds of medical categories in which their personnel are subdivided, and in civilian life we have several dozen kinds of health workers, other than physicians. I shall discuss three types of personnel who contribute to medical care. These are the laboratory technician, the medical social worker, and the physical therapist. On the basis of these illustrations I will make some generalizations about such contributions, and draw some conclusions.

The **laboratory technician** is an ubiquitous associate of modern medicine. If the physician today had to carry out all the laboratory determinations which contribute to a diagnosis and enable him to follow the progress of the patient under treatment, he would have no time for anything else. Of course, if the physician had to do them all the number of tests done would be much smaller, but even if the volume were cut down to include only those that are distinctly necessary or desirable, the physicians of the country would have little time to see their patients.

However, any one who has worked closely with laboratory technicians would not explain their use only on the basis of the doctor's time. There is no doubt, whatever, that a very large number of technicians develop a competence and efficiency in routine work which far exceed that of most physicians. Certainly the accuracy of a good technician in an accustomed procedure is greater than that of the physician who does the same procedure rarely. One characteristic of medical technology is that it is subject to unlimited subspecialization. Through this device even very complicated tests can be accurately done because of the concentrated experience of the technician assigned to that task.

It should be emphasized that when we speak of "routine" or "accustomed" procedures, we do not mean unimportant. The responsibility of the laboratory technician in modern medical practice is enormous. The physician has been trained to place great reliance on the data which come from laboratory tests. His whole attitude toward diagnosis and treatment may be influenced by the report of a single chemical test of some blood constituent. Whether we have more veneration than is desirable for such quantifiable approaches to medicine may be debated; but there is no doubt that an erroneous report is worse than none, since it gives the physician

a false direction, which might have been avoided if he depended only on clinical judgment; and in such things as testing blood for transfusion, faulty technic may produce a lethal result.

In summary then, the laboratory technician, although not expected to exercise individual judgment about the methods she uses or the results she obtains, has responsibilities of great importance in medical practice. Very often through concentrated experience in routine procedures she develops efficiency of remarkable proportions. Irresponsible behavior by a laboratory technician would produce temporary chaos in a modern hospital.

The **medical social worker** is an associate of relatively recent vintage in medical practice. In little more than 30 years she has established herself in most large medical centers, but relatively few have found a role in connection with the practice of individual physicians outside of hospitals.

It is of some interest to note that medical social workers must have four years of college study and two years in graduate school to qualify for official recognition. Special emphasis should be placed on the fact that social case aides and other relatively untrained personnel may be used in hospitals and community agencies under titles which obscure the fact that they are not qualified medical social workers.

The medical social worker contributes to medical practice in three principal areas: (1) by studying the way personal environmental factors bear on the individual patient's illness; (2) by assisting the patient and his family to understand and adjust to the problems associated with his illness; and (3) by using expert knowledge of community health resources to help the patient or his family make effective contact with the agencies or individuals able to provide the needed services.

It is obvious that to accomplish these tasks, the medical social worker must, among other things, make effective personal contact with patients and their relatives, must have good understanding of the reactions of patients and their associates to disability, must communicate well with physicians to learn the nature and progress of the patient's illness, and must know and work closely with all the health and welfare agencies of their community.

Although individual physicians may do any of the above tasks well, it would be a rash observer who would say that the only reason all doctors do not take care of all these items well is because they do not have enough time. There are certainly special qualities of tact and patience necessary to help patients and families discuss their feelings and their problems, and to bring about constructive adjustments to real and heavy burdens. Good medical social workers have worked hard to develop these qualities, and to gain the knowledge necessary to guide the patient through the complex maze of health agencies in a modern urban community.

In summary, the medical social worker has professional responsibility in complex interpersonal and community relationships. She must exercise great judgment and tact, and apply to the individual patient's problems special knowledge, experience and skill.

The **physical therapist** has been an important contributor to medical practice for a long time, but his precise role is still not clear, and is even now a matter of some controversy. This is in part due to the variety of educational programs which have been available, and which produce graduates who vary considerably in maturity, knowledge, and capacity for assuming responsibility.

However, the major reason for confusion about the role of physical therapists is confusion in the attitudes of physicians about the way physical therapists should function.

On the one hand there is a group of specialists, primarily orthopedic surgeons and more recently physiatrists, who know a lot about physical therapy. They may be quite definite about exactly what kind of treatment they want for their patients and how they want it given. It is natural for them to write very specific prescriptions for the guidance of physical therapists. Under these conditions the therapists function primarily as technicians, exercising little independent judgment and carrying out the physicians' orders in the prescribed manner.

On the other hand, there are physical therapists who work in a clinical situation in which there is no specialist well versed in all modalities of physical therapy and able to appraise accurately the details of the patient's progress under such treatment. In this kind of a setting it is incumbent on the therapist to work with general physicians, to advise them about the best modalities of physical therapy applicable to the particular patient, and to keep them informed about the way the patient is responding to treatment.

As a former medical director of a rehabilitation center, I can say that I have the greatest admiration for the knowledge, skill, and judgment of well trained physical therapists. As a medical educator, I can say that I see no possibility that we can ever hope to give all medical students the kind of knowledge about the musculoskeletal system that experienced therapists have; and also that I see no possibility that we can increase the number of orthopedic surgeons and physiatrists to assure that all patients who can benefit from physical therapy will have access to one of these specialists who is capable of writing an exact prescription for physical therapy.

In summary, then, the role of physical therapists today is in a confused state, largely because there is difference of opinion among doctors about how they should function in relation to medical practice. This confusion must be resolved so that appropriate educational programs and measures of competence can be developed for physical therapists in whatever categories may be necessary to assure effective service to all patients who need their help.

It is easy for professional health workers to become so engrossed in their daily, demanding tasks that they forget to take time to reflect on the evolution of their profession or to assay and redefine their profession's objectives in a changing world. I shall do no more than to call your attention to the fact that only 50 years ago for a large portion of our population health services meant what an individual physician, often poorly educated by modern standards, could do with no more aid than he could get from his black bag, and the patient's family or some helpful neighbors. It is a far cry from that to the kind of resources most physicians have available to them today in the modern hospital and the organized health agencies of their community.

This evolution in medical care has come about primarily for two reasons: First, the tremendous advances in knowledge about the causes, prevention, and treatment of disease; and second, the increased demand for health services made by an informed public whose social conscience dictates that its goal shall be best possible care for all citizens.

Although it is tempting to dilate further on these factors, I shall go directly to some of the principles about auxiliary personnel which emerge from consideration of the developments in health services during these past 50 years.

1. As new knowledge and skills are made available, health services inevitably become increasingly complex and expensive. Optimum care cannot become distributed widely to all citizens

unless progressively more efficient and economical ways are found for delivering needed services to the individual who will benefit from them.

2. The scope of health services has become so broad that no one person has all the knowledge, skills, and attitudes necessary to do every health service job better than others can do it. Use of auxiliary personnel should not be based on the idea that delegation of function is done only to save the time of some mythical paragon who could do every job magnificiently if he were not busy doing something else more important. Positive emphasis should be placed on the need for many people with a variety of aptitudes, skills, and backgrounds to do the many different tasks that contribute to comprehensive health service.

3. Although nothing can transcend the importance of the individual professional relationship with a patient, there is real danger that this relationship will break down unless it can be integrated successfully into an efficient system for comprehensive health services. Such integration will require dynamic leadership characterized by:

(a). fullest possible use of the talents of a variety of health personnel

(b). effective integration of the efforts of all personnel working with an individual patient

(c). continuing reassessment of the tasks to be done and the most efficient and economical means by which they can be done well.

4. High quality comprehensive health services can be provided economically today only under conditions which assure demand for a large volume of such services. The many kinds of equipment and personnel that are needed mean a large expense for the community. This can be justified only if the facilities and skilled workers are fully utilized and the cost per unit of service kept at the lowest possible level. This means that some organized way must be found to make available readily those facilities and services which the clients of the individual practitioner need, but which the volume of his practice does not permit him to maintain. The hospital and group practice have emerged as partial solutions of this problem in medical care.

5. It is not possible to use any kind of auxiliary personnel effectively in practice until it is decided whether individuals in a particular category are to function as technical assistants or professional associates. In general, the technician does a prescribed task under close supervision and exercises no independent judgment about the methods or the results. A professional role is more difficult to define but includes the following elements:

(a). a special area of knowledge and skill

(b). a meaningful personal relationship with the patient

(c). sincere dedication to the best interests of the patient

(d). freedom to exercise independent judgment within the assigned area of professional responsibility

(e). recognition of limits of personal competence and willingness to seek assistance outside these limits.

6. There is nothing more fruitless than trying to define the role of health service personnel in absolute terms. In every instance the function of a particular worker will depend on the needs of the patient and the other kinds of personnel reasonably available in the community. Perhaps the best compromise is to say that no health worker should render service to a patient if there is someone else readily available who can do it distinctly better. It is certainly not constructive to set up a rigid definition of the function of a particular worker based on the resources of a large, teaching hospital, and expect the same limitations to apply in an undeveloped area without specialized health personnel.

An informed public will eventually get the kind and amount of health serv-

ices it wants. It seems clear that if professional workers in the health fields do not provide leadership in making comprehensive health services broadly available, the impetus will come from outside the health professions, through the activity of government agencies, hospitals, labor unions, fraternal organizations, school systems, and other groups.

If effective leadership does develop in the health professions, looking toward a vigorous effort to make comprehensive care available on a wide scale, its first task should be to seek truly functional definitions of the roles of health service personnel to assure that:

1. Professional responsibility for the exercise of judgment in service to patients will be in the hands of properly educated persons who have truly professional attitudes toward their responsibilities.

2. Full use will be made of the talents of a variety of health service personnel, so that there can be appropriate roles with areas of independent responsibility and action for persons with professional education and attitudes, and appropriate recognition of the superior skills of the well trained technologist under proper supervision.

3. A research approach will be made toward the problems of health services so that basic data will be available for continuing reevaluation of the quality of care, the kinds and numbers of personnel needed, and the most effective way to use them in a complicated group effort.

Dr. Caughey is associate dean, Western Reserve University School of Medicine, Cleveland, Ohio.

This paper was presented before the Dental Health Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 11, 1957.

Seminar in Business Management in Public Health

The Fifth Seminar in Business Management in Public Health will be held at the "summer campus" of the University of Minnesota, September 21–26, 1958. The seminar at Lake Itasca State Park is sponsored jointly by the Association of Business Management in Public Health and the university's School of Public Health and Center for Continuation Study. Among the objectives are "to establish workable management practices and develop ideas for problem solving." The method used will be informal discussion within small study groups on administrative topics of pressing interest as determined through a "problem census."

Chairman of the seminar is Ralph E. Dwork, M.D., Ohio health commissioner. Assisting him on the selected faculty will be R. N. Barr, M.D., executive officer, and Marie Ford, health education director of the Minnesota Health Department; Leonard M. Schuman, M.D., professor of epidemiology, Minnesota School of Public Health; Toledo's health commissioner Hilbert Mark, M.D.; and president of ABMPH, Sam A. Kimble, chief, State Grants Division, Public Health Service.

Public health workers in local, state, federal, and voluntary agencies are encouraged to register. Further information from Seminar Planning Chairman, Center for Continuation Study, University of Minnesota, Minneapolis 14.

Man and woman power is the weak point in the defense perimeter which public health holds around American communities. This is a subject on which creative thinking is needed, especially in regard to the more recent groups of health workers. Here the dental hygienist is scrutinized in this context.

THE POTENTIAL ROLE OF THE DENTAL HYGIENIST IN PUBLIC HEALTH PROGRAMS

Martha H. Fales, F.A.P.H.A.

The Problem

THE AMERICAN PUBLIC HEALTH ASSOCIATION Subcommittee on Educational Qualifications of Dental Hygienists in Public Health from reports of the Public Health Service and Office of Education, estimates about 819 dental hygienists are engaged in some form of public health work. Six hundred and three of these are in school health programs.[1]

The Health Manpower Source Book [2] on dental hygienists, based on 1954 data, shows that roughly 27 per cent of those reporting and practicing are employed either by local, state, or federal governments or private health or welfare agencies. A nation-wide survey in 1946 [3] showed 38 per cent employed by these agencies. This is a loss of 11 per cent following the war years.

The Subcommittee on Public Health of the American Dental Hygienists Association reports [4] in 1957 a total of 40 vacant public health positions for dental hygienists. Twenty-six of these positions are on the staffs of state health departments and 14 are in local and school health departments.

There were 848 dental hygiene graduates in June, 1957,[5] 36, or 4.2 per cent, accepted public health positions. Seven of these were graduates of bachelor degrees' programs.

From these figures we may conclude that: (1) public health dental hygienists are a limited group; (2) the group is not increasing in proportion to other public health disciplines, nor in proportion to their own expanded numbers; and (3) the recent graduates going into public health are not replacing the public health dental hygienists lost by death and retirement. Therefore, it seems evident that we must appraise our situation critically and endeavor to use the present workers and their talents to the best possible advantage so newer graduates will be attracted to public health and the assignments will be a challenge to them.

Public health dentistry states very confidently the value of auxiliary personnel in private practice and shows figures on how a dental hygienist, a dental assistant, and/or a secretary can increase dentists' production and incomes. How does this work in public health dentistry? When public health dentists fail to apply these same principles to their public health programs, they do not extend their dental services to as many peo-

ple as possible and do not get full value for each budget dollar.

If public health dentists do tasks dental hygienists are competent to do, they give back only a 50-cent dollar to the public; when they do dental assistant or secretarial duties the people get only a 35- to 40-cent dollar. What dental hygienist can maintain her self-respect while a public health dentist (for roughly twice her salary) performs examinations, prophylactic or roentgenographic functions for which she is licensed and could, with a chance to practice, learn to perform equally well?

The aim of this paper is to point out areas where dental public health administrators could delegate items legally and technically to dental hygienists to free themselves for more important professional dental activities. The items may serve as justification for additional staff dental hygienists to volunteer to expand their present services. In the wake of the increasing demand for public health dentists these become much more essential. Conservative estimates indicate one public health dentist should be responsible for four dental hygienists before adding another public health dentist to his staff.

Suggestions

We have at least three levels of competence within the groups of dental hygienists working in public health, so the potential role of each will be considered separately. The certificate dental hygienist, the dental hygienist with a bachelor's degree and the dental hygienist with graduate training in public health beyond the bachelor's degree are the levels to be discussed.

Certificate Dental Hygienist

(A dental hygienist with two years of technical training in dental hygiene skills, state board licensed, and with or without experience.)

This classification of dental hygienist is primarily equipped to perform in the service area of the public health program. She can be trained by her director to educate individual patients to dental procedures, including introducing children to dentistry. She can inform patients and parents of anticipated procedures, teach clinic patients the requirements and routines of the clinic, and teach patients dental health facts. She may screen patients for dental needs, separating clinic cases from referrals to private dentists. She may make a community dental survey for dental evaluation purposes and she may screen pupils on school programs, nursery schools, town employee examinations, and others. She may take roentgenograms for dental clinic cases, for community surveys, or for research studies. She may do all the prophylactic work for clinic cases or for demonstration programs. Making topical fluoride applications if the fluoride content of the water in the community has not been adjusted, and making occlusal evaluations, coding findings, making models, and helping patients carry out exercises fall in her area as well. She should take charge of clinic supplies, including education of the staff on newest materials available.

These activities would take full advantage of her two years of technical dental hygiene training.

Degree Dental Hygienists

(A dental hygienist with a bachelor's degree, including training in public health and education, in addition to a certificate in dental hygiene, and preferably some experience or maturity.)

This classification of dental hygienist is much better equipped to function in public health programs because she can be allowed a wider scope in her program, again, with the aid and support of her director.

Her screening program can go beyond the actual screening examinations to

tabulation of recorded findings, interpretation of findings to her own department, and beyond as necessary. Making screening examinations in any quantity can become deadly, but if the dental hygienist has an opportunity to analyze the data and see it used properly to substantiate beliefs, justify expansion, or provide new services the dull routine takes on new life and each case adds its value to the program. Dental hygienists adept at "numbers" can save the dental director many hours of statistical analysis if given the opportunity.

Dental clinic reporting is another closely allied area where dental hygienists can compile reports for the dental director at half the cost. This does not mean the director ceases to be interested in this item, but it means he delegates the compiling of data to the dental hygienist and then they can sit down and interpret the findings together. This last procedure cannot be recommended too highly as it serves multiple purposes. It shows the dental hygienist what items are essential to measure for various evaluations and conversely it shows which items are worked up and possibly not used so that they will not be perpetuated.

It is in community activities that the degree dental hygienist can be most valuable. A dental hygienist with a degree in education or some background in educational philosophy, psychology, methods, and teaching technics can be assigned the major load of the school dental health program. She might provide information to superintendents, principals, and teachers of a technical and general dental nature. She would act as a consultant to teachers in implementing an integrated dental health program; provide bibliographies, new materials, and even new technics by individual contact with the teachers or by organizing working groups in accordance with the problems, teachers' backgrounds, and policy of the school system. Depending on the aim of the program, size of community and local needs, she might well do this in addition to a service program or instead of a service program. The educational program would reach a larger number of pupils, of course, than a service program could.

The degree dental hygienist can continue her information and program interpretation to local community groups, both for professional and lay groups. Her closeness to the members of various lay groups, or actual membership in organizations, gives her an opportunity to get in timely firsthand information. The thought here is particularly of the effectiveness of the League of Women Voters in the promotion of fluoridation in communities. Knowing their structure and work patterns she can work more easily with them. They are a strong force to consider currently in New England communities.

If a dental hygienist is allowed to sit in with her director or represent him in planning for many community projects, such as health fairs, exhibits, or special promotions, she may save many professional hours. Liaison work with welfare groups, learning eligibility requirements, and channeling for aid to dependent children, crippled children, veterans groups, and others fall in the scope of the degree dental hygienist. Also, the degree dental hygienists can contribute public health information to training schools as guest lecturers and serve as supervisors for field training experiences.

Degree Dental Hygienist with Graduate Training in Public Health (M.P.H.)

The dental hygienist with graduate training in public health beyond the bachelor's degree level is a valuable worker and invariably carries full professional dental public health status in areas of her competence. She tends to be more than slightly dedicated and be-

cause of it seems able to combine the critical area of marriage and a family, which claims such a high toll of dental hygienists.

In the area of administration some of these dental hygienists are given expanded responsibilities and the title of dental health coordinator. These dental hygienists can very ably administer town or country dental programs utilizing advisory dental committees for dental guidance in the absence of public health dentists. The idea is for the coordinator to serve as the connecting link between the dental clinic program and the various dental advisory committees, the public and parochial school programs of service and education, the professional groups in the community, the lay groups including especially PTA, social and church groups, and the welfare and public service groups. She aims to bring the interests of all these groups together to produce a dental program truly community supported. Besides being the good will ambassador of the community-wide dental program, she may participate in program planning and evaluation, take an active part in recruiting for staff openings and do the preliminary personnel functions associated with new personnel, help prepare the annual report and budget, organize initial staff orientation and continuing educational programs, as well as arrange field training visits and educational institutes for various groups.

It is of interest to note that when one local health department was studied by a group from a graduate school of business administration they removed the dental health coordinator from the area of dental health services and placed her in a staff position of support service. This was done because she dealt in almost equal amounts with child health services, nursing health services, and the envisioned fluoridation promotion which would involve the sanitation services.[6]

Dental health consultants on a state level with graduate training have wider areas to accomplish their coordination and additional challenges in varied types of communities. Where the area of a state is large and consultants limited, it seems the most fertile area for service is in working with dental hygiene training schools and teacher training colleges. Each hour spent with 20 or 30 potential dental hygienists or teachers saves 15–20 hours necessary to reach the same people after they are out of school.

Another area that should be given consideration at all three levels of training is the potential of trained dental hygienists whose families no longer demand their full time. Some of these hygienists, with a little encouragement, would return to work. Hospitals have tapped this resource, given such nurses refresher courses, and reactivated them in full- and part-time positions with considerable success.

Conclusions

The foregoing has attempted to outline ways in which the dental tax dollar can be best used to obtain the greatest benefits. In between the lines it is hoped that the point is made that to maintain the dental hygienists we have in public health and to attract new ones they must be given responsibility and opportunities to use their capacities to the fullest. These are only some suggested ways variously trained dental hygienists can be used. Of course, personality and individual capabilities enter in and no one dental hygienist will possess skill in all areas, but if each dental director would delegate one new responsibility to his dental hygienist we would be on our way to creating a greater potential role for the dental hygienist in public health programs.

REFERENCES

1. Committee on Professional Education. Proposed Report on Educational Qualifications of Public Health Dental Hygienists. A.J.P.H. 46:899-905 (July), 1956.

2. U. S. Department of Health, Education, and Welfare, Public Health Service. Health Manpower Source Book. PHS Publ. No. 263, Section 8. Dental Hygienists. Washington, D. C., Gov. Ptg. Office, 1957, Table 24, p. 35.
3. O'Rourke, J. T. Analysis of a Survey of Dental Hygienists in the U. S. J. Am. Dent. Hyg. 21:116–117 (Oct.), 1947, and 22:6–12 (Jan.), 1948.
4. American Dental Hygienists Association. Reports of Officers, Journal Staff, and Committees. 34th Annual Meeting, p. 68.
5. Ibid. p. 84.
6. Wood, Robert C., and Redfern, Leo F. Report of a Survey of the Brookline Health Department. Cambridge, Mass.: Department of Government, Harvard University, 1956.

Mrs. Fales is dental health coordinator, Health Department, Brookline, Mass.

This paper was presented before the Dental Health Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 11, 1957.

A First in Veterinary Public Health

The First Institute on Veterinary Public Health Practice will be held at the University of Michigan School of Public Health, October 6–9, 1958. The institute will be concerned with what is being done and what needs to be done in advancing "human well being by utilizing the combined knowledge and resources of all those concerned with human and animal health and their interrelationships." A prime purpose is to bring all the health disciplines into participation in the institute.

The program has been organized in the Department of Continued Education, H. E. Miller, director, with the help of an eight-member planning committee. Leroy Davenport, D.V.M., deputy director, Division of Milk Control and Veterinary Public Health, Illinois Department of Health, represents the American Public Health Association on this committee. Other collaborating agencies are the Associations of State and Territorial Health Officers and of State Public Health Veterinarians, American Board of Veterinary Public Health, Conference of Public Health Veterinarians, and the Communicable Disease Center of the Public Health Service. Berwyn F. Mattison, M.D., executive secretary of the American Public Health Association, will preside at the opening morning's session.

Five committees with a personnel of about 95 have for two years been developing the subjects for the institute. The five subjects which they have been exploring and which will be dealt with in addresses at the opening sessions and in subsequent committee discussions are: Working Relationship of the Career Public Health Veterinarian to other Public Health Disciplines; Working Relationship of Veterinary Medicine Practitioners to Public Health; Present and Potential Utilization and Contributions of Career Public Health Veterinarians and Practicing Veterinarians in Official Public Health Programs; Actual and Potential Utilization of, and Contributions by, Veterinarians in Voluntary and Official Agencies and Industry, and Education.

As a result of the institute it is expected to compile a publication on veterinary public health practice that will reflect the thinking of the institute stimulated by both the formal presentations and committee studies.

Requests for registration and further information from Director, Continued Education School of Public Health, University of Michigan, Ann Arbor, Mich.

The author of this article also discusses the role of auxiliary personnel in dentistry and poses some of the problems to be faced in the light of past experience.

EXTENDING THE FIELD FOR DENTAL AUXILIARY PERSONNEL IN THE UNITED STATES

James M. Dunning, D.D.S., M.P.H.

MUCH AS we may look to the preventive measures of the present and of the future to cut down the need for dental care in this country, the dental profession cannot escape responsibility for treatment. Any realistic public health approach to the problem of treatment makes it clear that manpower as now utilized by the dental profession here is totally inadequate to the task before it. We need only remind ourselves of the effort made by the Public Health Service about 10 years ago to turn figures for dental treatment needs in the United States at that time into man-hours and man-hours into men.[1] It was estimated that 450,000 dentists would be needed to treat the accumulated dental needs of the country within a period of one year. If that objective were accomplished, it would then need 160,000 dentists working continuously to keep abreast of yearly increments in treatment need. These figures, of course, were set alongside that for the available dental manpower at the time, which was in the neighborhood of 80,000 dentists. Whatever minor changes may have occurred in these figures since 1945, when they were published, surely the main conclusion to be drawn from them has not changed, namely, that drastic changes must be made in the teamwork and efficiency of the American dentist if important progress is to be achieved in closing the gap between needed treatment and treatment rendered. An increase in the ratio of dentists to population is to be desired and strong efforts, of course, have been made in that direction in the past decade, but no appreciable success has been achieved. The growth of the American population has effectively checkmated all our efforts to increase the number of dentists in the country.

The American dental profession is not noted for its teamwork. Less than 70 per cent of our dentists employ full-time assistants and less than 7 per cent employ full-time dental hygienists.[2] Table 1 gives in round figures a comparison between the dental profession and the medical profession in the use of professionally trained assistants. A recent American Dental Association estimate of 84,000 practicing dentists[3] has been set against rough figures of 6,900 for dental hygienists and 30,000 for the laboratory men, giving a ratio of a little less than one to one-half. A 1955 figure has been taken for 208,000 active physicians and this is set against a 1953 figure of 335,000 for nurses, physiotherapists, occupational therapists, x-ray technicians, dietitians, medical-social workers, and so forth.[4] This gives a ratio in the medical profession of ap-

Table 1—Numerical Relationships of Dentists and Physicians to Their Professionally Trained Assistants, 1956. Pharmacists Are Omitted

Dentists	$\frac{\text{84,000 practicing dentists}^{3}}{\text{6,900 hygienists + 30,000 laboratory technicians}}$	$=\frac{1.0}{0.4}$
Physicians	$\frac{\text{208,000 practicing physicians}^{4}}{\text{335,000 nurses, P.T.'s, O.T.'s, x-ray technicians, dietitians, medical social workers}}$	$=\frac{1.0}{1.6}$

proximately one to 1.6. Calculation of this sort is vague at best for many workers of marginal training have been excluded. Thus 62,000 dental assistants more or less have been omitted from the dental ratio, as well as the dental secretaries and receptionists. On the medical side, nurses' aides, medical secretaries, and many others have also been omitted. Pharmacists, who help both physicians and dentists, are excluded. The general order of magnitude, however, is probably rather close to the truth: physicians use about four times as many professionally trained assistants per person as do dentists. There are reasons for this situation, to be sure. Physicians have a large proportion of bed patients to deal with and much of the treatment they prescribe can be delegated quite satisfactorily to assistants with a lesser degree of skill. The consequences of incorrect treatment, however, are likely to be more serious in the medical than in the dental profession. All in all, dentists have much to learn from the medical profession in their use of auxiliary personnel.

Considerations of this sort led John T. Fulton, D.D.S., dental services adviser to the Children's Bureau in Washington, D. C., to look very carefully at the New Zealand school dental nurse system, and as early as 1947 he proposed a trial of this system in the United States. The record of the New Zealand School Dental Service as shown in its annual reports was most impressive. In 1949 the service operated 508 treatment centers with a staff of 451 dental nurses in the field, each a graduate of the two-year training course at Wellington. In all, 2,333 schools were serviced, with over 235,000 children under regular treatment.[5] This represented 97 per cent of the primary schools in the country and 84 per cent of all the children of suitable age. One dental nurse was assigned to each 500 children. The report for that year listed 1,674,125 operations, including 1,139,729 fillings and 69,718 extractions, all the work of dental nurses. The ratio of fillings to extractions here is 16 to one. This ratio, a very easy one to compute in any annual report of dental operations, gives an excellent picture of how far a service has progressed away from emergency care toward maintenance care. I have never seen a ratio in a school dental service in the United States that was even half as good as 16 to one. In the completion of dental treatment, too, the New Zealand School Dental Service was making a remarkable record. In 1949 they reported that they completed 95.4 per cent of their initial care and 99.9 per cent of their maintenance care.

Dr. Fulton's efforts to bring the dental nurse to the United States constitute a chapter in the history of American dentistry which merits retelling. Fulton found his warmest reception in Boston, Mass. Discussion of the extended use of auxiliary dental personnel had taken place over several years, much of it stimulated by the late John T. O'Rourke, at that time director of postgraduate training at Tufts College Dental School. The discussion reached a climax in April, 1948, with a large professional symposium at which a straw vote was taken as to the audience's willingness to see dental hygienists fill children's teeth. This vote was carried in the affirmative. The symposium attracted, to be sure, the more progressive members of the profession, but the sentiments

expressed there were matched in the Massachusetts Department of Public Health and in the Forsyth Dental Infirmary for Children. The Forsyth Infirmary provided an excellent site for the training and evaluation of dental nurses. A bill was therefore drawn up to permit the Massachusetts Department of Health to accept a grant of $50,000 from the Children's Bureau and allocate the grant to the Forsyth Infirmary to cover the first year expenses of a five-year study project. This project was to include two years of training and three years of evaluation for a single class of 15 trainees. The trainees were to be paid for their time, since there was no way to be sure they would ever be licensed to practice anywhere at the end of the five-year period, and their entire work experience was to be within the walls of Forsyth Infirmary. The sole object of the study was to allow observation of dental nurses at firsthand in this country, both in training and in experimental practice. The bill permitting the project was passed in July, 1949, and in September of that year 15 experimental trainees were selected from among volunteers from the first-year dental hygiene class at Forsyth. During the ensuing academic year the trainees followed the same basic science curriculum as the rest of the dental hygiene class, while their superior officers set about obtaining the approval of the dental profession for the experiment they had in mind.

At first all went well. Committee approval for the project was obtained within the Massachusetts Dental Society and the Metropolitan (Boston) District Dental Society showed a warm attitude which culminated later in an almost unanimous vote of approval. The Massachusetts Board of Dental Examiners approved the grant. By October, however, the tide was beginning to turn. News of the project had passed beyond the more progressive circles in the dental profession on to the rank and file and a grass-roots opposition to the plan arose which was the greatest possible surprise to those who had been instrumental in bringing the plan into being. The American Dental Association seized upon the plan at its annual meeting that month in San Francisco and, although the association had only the most incomplete and indirect reports of the project, it voted its disapproval. By January, 1950, a group of dentists from the western part of Massachusetts had initiated a bill in the State House for the repeal of the original permissive legislation. An acrimonious controversy arose within the dental profession.

At this point, both sides began to feel a lack of firsthand evidence. Dr. Alan O. Gruebbel of the American Dental Association staff was sent by the Association to New Zealand for a survey, his report later appearing by installments in the Journal of the American Dental Association.[6] Dr. Fulton received a fellowship grant from the World Health Organization to visit New Zealand and also made a survey, later published in monograph form by the World Health Organization with documentation on over 4,000 dental examinations.[5] Both men were in New Zealand at the same time in the spring of 1950.

In the face of the rising storm the administrative officers at the Forsyth Infirmary and in the Massachusetts Department of Health resolved to move forward with the project as long as they had legal sanction. In June, 1950, therefore, when the trainees completed their first year of basic training, the remaining 12 were put at specially constructed benches and were taught cavity preparation and filling procedures just as are the dental students in the field of operative dentistry. During the next three months, according to their instructors, the girls made excellent progress.

The emotions of the entire dental profession, however, were aroused by this

time and the new factual material on dental status in New Zealand was not yet available to quiet their fears. A heated political campaign took place which culminated in the repeal of the law permitting Forsyth to continue the experiment.

The seven succeeding years have given us considerable perspective on this tragedy—for it must be called that. On a statistical basis it is exceedingly clear that the New Zealand dental nurses have done a marvelous job. Working with populations that have a high incidence of dental caries, the treatment they rendered resulted in a loss of permanent teeth among the older children of 50–75 per cent lower than that found in comparable United States communities.[7] They reduced decayed teeth almost down to 10 per cent of the DMF count and increased filled teeth to over 80 per cent; whereas in similar areas here decayed teeth are often 60 per cent and filled teeth only 30 per cent of the usual DMF count. Figure 1 shows graphically how favorably the New Zealand work compares with similar work in the Commonwealth of Massachusetts.[8] These fine results, of course, are not necessarily seen because the girls were dental nurses and not dentists. If dentists had been employed as resident staff members in the New Zealand school system, they would almost undoubtedly have accomplished a similar result because they would have been given time to carry their work to completion. It is significant, however, that dentists were not hired by the New Zealand school system, nor have they ever been hired to my knowledge in the United States under conditions which would permit them to achieve similar results among school children. Sex may have something to do with this. It seems quite likely that women will undertake employment by a government agency, in order to care for children, much more willingly than will men.

Figure 1—Dental Caries Experience Among 14 Year Old Children of New Zealand * and Massachusetts †

1) 452 CHILDREN ALMOST EVENLY DISTRIBUTED ACCORDING TO SEX AND URBAN VS RURAL RESIDENCE. (FULTON 1950)
2) 454 CHILDREN FROM 19 MASSACHUSETTS COMMUNITIES (WELLOCK 1950)

* Four hundred and fifty-two children almost evenly distributed according to sex and urban vs. rural residence (Fulton, 1950).

† Four hundred and fifty-four children from 19 Massachusetts communities (Wellock, 1950).

Why was the dental nurse plan so unceremoniously rejected by the American dental profession, in spite of its technical success and the known fact that it had won the approval of the New Zealand dental profession? Leaving out of consideration a great many emotional and uninformed responses, it seems to me that a large number of thinking American dentists were convinced that abbreviated training was bound to produce an inferior type of treatment, in spite of evidence to the contrary. They also felt that the admission of persons of abbreviated training to even a portion of the therapeutic responsibility of the dentist constituted a threat to the dentist's professional autonomy or integrity. Apparently, they failed to appreciate that the dental nurse, by the very circumstances of her employment, was not called upon to perform more than a small fraction of the range of dental operations which the average dental practi-

tioner must be ready to perform. She was working under a strict set of rules and, although supervision of her activities was of a somewhat tenuous nature, she was, nevertheless, more firmly bound to refer cases beyond her ability to more qualified practitioners than is the independent dentist in this country. In these days, by the way, when the scope of dentistry has expanded to such an extent that no dental practitioner can claim to know it all, the responsibility on the practitioner to refer cases is greater than it has ever been. A standard dental education today does not include as large a proportion of the sum total of dental science as it used to. Every one of us must know his limitations. There is no reason to believe that an operator with abbreviated training would be any less willing to refer cases than is one with more extensive training.

At this point sex may again enter the picture. American dentists, knowing well the tendency of laboratory men in this country to exceed on occasion the assigned scope of their activities, have assumed that dental nurses will do the same. They know the aggressive tendencies of the American male breadwinner. Girls, however, do not usually have families to support and a career for them is less an end in itself than it is with a man. Dental hygienists, and I have worked with many, usually have to be pushed to adopt a new idea even within the normal scope of their assigned activities. Fears that the dental nurse will usurp the dentist's field, I believe to be unfounded.

Estimates vary as to the quality of the work of the New Zealand dental nurse. Gruebbel was critical of it. He found 28 per cent of the fillings he examined to have surface defects of one sort or another. He never presented any evidence, however, to show that the work of the average American dentist would contain any smaller proportion of surface defects. Fulton's estimates of quality were highly complimentary to the dental nurses. The crucial point, in my opinion, lies in the fact that even if Gruebbel's estimate of surface defects be accepted, the New Zealand children in the older age groups had received more good fillings per child than have the children in any comparable American samples, and their loss of permanent teeth has been more than cut in half.

What of the future? Should we try to revive the training of dental nurses in this country on the basis of far better evidence than was available in 1949 and, we hope, better planned public relations, or shall we look for other avenues by which to extend the usefulness of auxiliary personnel? I am not certain about this. The dental nurse plan permits the employment of women on a full-time basis in school systems in a way which seems far more conducive to good maintenance care in public dental programs than has yet been achieved in any other way. Girls are removed from their careers very quickly by marriage, however. Dental nurses in New Zealand are reported to average seven years and nine months of service before resignation. The average employment of a dental hygienist in this country is said to be in the neighborhood of seven years. The increased task of training replacements for dental nurses thus offsets to a large extent any advantage which may have been obtained by giving them brief training in the first place. I believe that the mores of the American dental profession could in time be altered to accept the dental nurse, but the public relations effort to accomplish this would be large, nor can one be completely sure that it is worth while. The American Dental Association has turned its attention toward preventive measures and has provided admirable support for water fluoridation. If this measure produces the results we hope for in the next decade or two, the

need for dental personnel will not be quite as acute as it is at the moment.

Meanwhile, another plan deserves attention. Dental hygienists could easily be trained to place fillings after the cavity preparation had been performed by a dentist. The dentist would perform all necessary surgical intervention and might even place the cement base in the cavity. The essentials of diagnosis and of cavity preparation would therefore be firmly in his hands and the girl who performed the filling work would have to be close to him, thus making for close supervision. The work of the Public Health Service in Richmond, Ind., and in Woonsocket, R. I.,[9] has shown us that long steps can be taken to increase the productivity of a dentist if he is given adequate support by dental assistants. If, in addition, he had someone who would perform his fillings for him as soon as the cavities had been prepared, one can imagine additional increases in efficiency of 50 or more per cent. The dentist and the other operator would exchange places in a two-chair set-up, such as has already been in use in the Richmond and Woonsocket programs.

Such an extension of the work of the dental hygienist would have far less impact upon the mores of the dental profession than would the New Zealand dental nurse plan, and might conceivably produce results which would compare well in their useful effect if school systems hired more dentists. In terms of training it is conceivable that regular graduates of dental hygiene schools could receive additional instruction in operative dentistry just as they now receive additional instruction in education. Room might even be found for such instruction within the two-year course. Perhaps the women would be called dental hygiene operators, just as the others are called dental hygiene teachers.

I should firmly support any new effort toward the experimental training of dental nurses in this country, just as I supported the effort in 1949; but I am inclined to think we shall have a straighter road before us if we take now only those steps which leave surgical intervention still in the hands of the dentist, and the dental operating team still working as a unit in one place. Thus, it is my recommendation that we try first to train the dental hygienist in the placing of fillings. More important, yet, the American dentist must learn to be a better supervisor, a better team captain.

REFERENCES

1. Public Health Service. Bulletin No. 245. Washington, D. C., 1945.
2. American Dental Association, Bureau of Economic Research and Statistics. The 1956 Survey of Dental Practice, IV. J. Am. Dent. A. 54:284-289 (Feb.), 1957.
3. ————. Distribution of Dentists in the United States by State, etc. Chicago, Ill.: American Dental Association, 1956, p. 2.
4. American Medical Association Directory, 1955.
5. Fulton, J. T. Experiment in Dental Care. World Health Organization, Monograph No. 4. Geneva, Switzerland, 1951.
6. Gruebbel, A. O. Report on the Study of Dental Public Health Services in New Zealand. J. Am. Dent. A. 41:275-283, 422-436, 574-589 (Sept.-Nov.), 1950.
7. Fulton, J. T. Dental Caries in New Zealand and the United States. A.J.P.H. 41:76-79 (Jan.), 1951.
8. Dunning, J. M. Dental Caries Experience in New Zealand Contrasted with that in Certain Parts of the United States. New England Dent. J. 4:10-14 (July), 1951.
9. Waterman, G. E. Effective Use of Dental Assistants. Pub. Health Rep. 67:390-394 (Apr.), 1952.

Dr. Dunning is director, Dental Health Service, Harvard University, Cambridge, Mass.

This paper was presented before the Dental Health Section of the American Public Health Association at the Eighty-Fifth Annual Meeting in Cleveland, Ohio, November 11, 1957.

George Rosen, M.D., Editor
Berwyn F. Mattison, M.D., Managing Editor

Editorial Board
Granville W. Larimore, M.D., Chairman
Martha L. Clifford, M.D.; Howard W. Ennes, Jr., M.P.H.; John J. Hanlon, M.D.; Frank L. Horsfall, Jr., M.D.; Perry F. Prather, M.D.; The Editor and Managing Editor

Staff
Lydia Gari, Editorial Assistant; Elizabeth Kellogg, Editorial Assistant; Frances Toorock, Editorial Associate; Willimina Rayne Walsh, Associate Secretary

Journal of Public Health

EDITORIALS

Community Aspects of Staphylococcal Disease

An appreciation of the community aspects of staphylococcal infections firmly establishes the problem as one of importance to the public health and adds impetus to our desire to thoroughly understand and promptly control the situation.

The staphylococcus is an extremely ubiquitous organism and staphylococcal disease in our general population may be considered endemic. There is no available evidence suggesting any recent change in the endemic level in the population at large, but it might well be predicted that a failure to adequately concontrol staphylococcal infections acquired in the hospital or elsewhere will be followed by a superimposition of family epidemics on the already existing endemic background and eventually by an increase in the community incidence of the disease. If future work confirms the suspicion that antibiotic-resistant "hospital strains" of staphylococci are significantly more virulent than "community strains," the uncontrolled problem could result in an increase in severity as well as an increase in the incidence of disease.

Hospital-acquired staphylococcal disease is being widely recognized as an increasing health problem. Application of technics for the precise identification of staphylococci allows for a much better understanding of the epidemiology of this disease. It has now been shown conclusively and repeatedly that infants and previously uninfected patients are becoming infected with particularly communicable and pathogenic staphylococci during their hospital stay. The association of these characteristics with antibiotic resistance is highly probable and it is quite likely that the hospital, as a place where antibiotics are used intensively, is serving as a source of the troublesome antibiotic-resistant strains.

There are ample reasons for deep concern on the part of physicians, nurses, hospital administrators, and public health authorities due to the serious nature of many of the infections and the added economic burden resulting from prolonged or additional hospitalization. In addition it is now becoming clear that the hospital through its discharged patients with latent infection is capable of acting as a focus for the general community. Infants infected during a nursery outbreak have been shown to carry the epidemic strain of staphylococcus as asymptomatic carriers for several months following their hospital discharge.

Careful follow-up studies in the homes

of infected infants have demonstrated a remarkable persistence of the epidemic strain within the family group with transmission from the infant to mothers, fathers, and siblings and the occurrence of repeated bouts of staphylococcal disease within the family unit. Control of the hospital outbreak has been followed by a cessation of these secondary intrafamily epidemics while attempts to eradicate family infections once introduced by a discharged infant have been very discouraging and the persistence of infections despite family therapy is the rule rather than the exception.

The bulletin "Prevention and Control of Staphylococcus Infections in Hospitals," prepared by the American Hospital Association, appears elsewhere in this issue. It should be required reading for every health officer as well as every hospital administrator. But we also need a community-wide attack on the whole problem—allowing a continuous check on distribution, prevalence and the effectiveness of control efforts.

Chemicals in Food as a Public Health Problem

FOR SEVERAL years a group of synthetic, non-nutritive, surface active agents have been used in many foods. These agents fall into three major groups: the polyoxyethylene esters of fatty acids, such as polyoxyethylene stearate; the sorbitan esters of fatty acids, such as sorbitan monostearate; and the polyoxyetheylene sorbitan esters of fatty acids, such as polyoxyethylene sorbitan monostearate. They are not specific chemical entities. As manufactured today, each of these groups of compounds consists of a complex mixture of many different organic chemicals. The toxicity and chemistry of different batches have been found to vary. Scientists of the Food and Drug Administration believe that these compounds have not met the testing procedures regarded by responsible food technologists as necessary to establish the suitability of chemical ingredients for addition to the food supply.

Flour is being treated with nitric acid to produce so-called "nitrated flour," a golden yellow product that has achieved widespread use in this country in baked goods. Scientists do not know whether the chemically altered constituents of "nitrated flour" are safe for long-term consumption.

Eight-hydroxyquinoline sulfate is being added to a cottage cheese coagulator used in many cheese plants. The safety of this salt for long-term consumption by man has not been established; the results of short-term tests of 8-hydroxyquinoline on rabbits and mice cast serious doubt upon the suitability of the material for use in man's food supply.

The striking thing about these and other materials is that, although they have not been adequately tested to establish their suitability, they are being added to food by the millions of pounds every year. No person in the United States today, who purchases food from the grocery store, is likely to escape exposure to inadequately tested chemicals.

There is just as much danger of a disaster in the food field today from use of inadequately tested chemicals as there was two decades ago of the elixir of sulfanilamide disaster in the drug field.

We recognize that most food manufacturers are reputable and reliable. We recognize that a great many of them perform adequate testing before using new chemicals. But as long as the only restriction on the use of inadequately tested chemicals is the conscience of the manufacturer and his fear of liability suits should a disaster occur, the public health is not being properly safeguarded. The good deeds of the majority cannot protect the public from the reckless, unscrupulous individual who will stop at nothing to make a fast dollar. It is

hardly conceivable that in this day of advanced scientific procedures and advanced social reforms the population should be subjected to the dangers of untested food additives.

The fault is not that of science. Pharmacology has supplied us with a method of testing these new substances on animals and determining whether the chemical may be considered suitable for incorporation in man's diet.

But the law has not kept up with science. There is no federal law that requires a chemical to be tested for safety before it is added to food. If it has been tested and has been shown to be poisonous, then there is adequate control. But if the promoter chooses not to conduct tests and does not know whether the new chemical is or is not a poison, he may go ahead and add it to food. Then the job of adequate testing and of removing the product from the market, if it turns out to be harmful, falls upon someone else, usually the Food and Drug Administration.

We do not have the facilities to test all of the new compounds that are being proposed for use in food and if we did, this would not be a satisfactory solution because under the present law, a promoter could market his poorly tested chemical for food use during the two- or three-year period ordinarily required to complete a chronic toxicity study.

This matter has received attention from Congresses since 1950 when a Select Committee was established by the House to investigate the use of chemicals in foods. In 1952 the committee issued a report which states in part:

"In conclusion, the evidence has convinced your committee that chemicals have been utilized in and on the food supply of the Nation without adequate and sufficient testing of their possible long-range injurious effects; that the public is entitled to greater protection with respect to the foods it must necessarily consume; and that such protection is not afforded by existing legislation, under which the Government may take no action until after the food has been placed upon the market and injury may have occurred. Your committee recommends, therefore, that the Federal Food, Drug, and Cosmetic Act be amended to require that chemicals employed in or on foods be subjected to substantially the same safety requirements as now exist for new drugs and meat products. Adequate provisions for a comprehensive judicial review of administrative decisions should be included in such an amendment."

In 1954, Congress passed a law to give better control of pesticide chemicals employed in agriculture and the 84th and 85th Congresses have considered proposed legislation intended to give adequate control over other food additives.

Last year (1957) the Department of Health, Education, and Welfare proposed remedial legislation to the Congress. The basic principles in the Department's proposal are:

1. The intended use of an additive in a food should be shown to be safe from the standpoint of long-term, as well as short-term, consumption before it is tolerated.

2. The use of a poisonous or deleterious additive should serve a purpose beneficial to the consumer. The purposeless addition of poisons to food should not be permitted.

3. Evidence to establish the above points should be secured by the person who wishes to promote use of the additive and should be submitted to the government for evaluation. The proposed use should be permitted by the government only after a favorable decision by competent scientists.

4. There should be adequate provision for appeal of an adverse government decision to the courts according to procedures that permit full consideration of complex scientific questions by scientists.

New, untried appeal procedures should not be experimented within this field of public health protection.

5. Any additive already in use whose safety is not generally recognized should be tested to establish its safety. There should be a reasonable period of time after the new law goes into effect to permit such testing.

APHA Field Evaluation—The St. Louis Survey

"It is an obligation of the American Public Health Association to provide leadership, stimulation, guidance, and consultation. These are needed especially in the field of administration . . ." so stated, in part, the Task Force at its Arden House Conference, October 12–15, 1956.[1]

"This service should include such activities as the preparation of policy statements and manuals; the prosecution of field studies and surveys; and the provision of consultation and other assistance to state and local health agencies, public and private."

In 1957 the APHA completed its survey of the City and County of St. Louis, one of the most extensive studies undertaken by the Association. A report of it is contained in a 437-page document entitled "Public Health and Hospitals in the St. Louis Area—A Mid-Century Appraisal."[2] This study will not only give new direction to the development of public health and hospital programs in the metropolitan area of St. Louis, but it can have a positive effect on the development of planned community health services throughout the nation. Fourteen major and a series of minor recommendations plot a new course for health services in St. Louis.

Whereas in the past, most of the studies and surveys of the APHA were concerned with official health department activities, this study makes an appraisal of comprehensive community health services. Financed from a bond issue, passed by the citizens of the City of St. Louis, the study was made "to appraise the existing services and facilities in relation to current and potential needs for services; to make recommendations as to the area of responsibility to be assumed by the state and by the voluntary agencies and institutions; to consider the feasibility of contracting with private hospitals and other institutions and agencies for the care of the medically indigent, and to include any other factors deemed relevant."[2] This study illustrates the poignant fact that the activities of a health department are but a small part of the total community health program, that planning must take into consideration the entire area, including both official and voluntary agencies. Planning must remain flexible, as "varying conditions may require alterations or substitutions in details of application and implementation."

Over half of the report is devoted to activities currently outside the Health Division of the St. Louis Department of Welfare. Consolidations are recommended which, if enacted, would not only give a high degree of professional satisfaction to the worker but what is even more important deliver to the people an effective program of health promotion, prevention, treatment, and rehabilitation.

The survey was directed by Edward Press, M.D., field director of the APHA, with Professor Ira V. Hiscock, Sc.D., formerly chairman of the Committee on Administrative Practice and president of the APHA, and Roscoe Kandle, M.D., currently first deputy commissioner of the New York City Department of Health and formerly chairman of the CAP. Twenty-four other consultants, who are not only experts in public health but experienced surveyors, comprised the team that completed the study. Two advisory committees and five subcom-

mittees of a total membership of 99 citizens assisted in the conduct of the appraisal.

Thus the study was made as recommended by the Task Force Report by full-time staff members with experts employed on an ad hoc basis for this specific project. And although the survey was not under the technical direction of the appropriate committees of the APHA, the staff and experts are to be congratulated on the completeness of a truly significant document. The study, made under trying conditions while the APHA committees were undergoing reorganization, is thus the product of the staff and chief consultants who prepared recommendations which, "so far as possible, conform to the experience and policies of the APHA."

The next major step, then, is needed to implement this part of the Task Force Report: namely, the development of a policy and procedure to assure the undertaking of the APHA's "obligation . . . to provide leadership, stimulation, guidance, and consultation" [through] "the prosecution of field studies and surveys" [by] "a number of full-time core staff members" [who] "should work under the technical direction of the appropriate committees of the APHA and assisted by . . . experts on an ad hoc basis for specific projects to be supported by . . . payments for services. . . ."

Thus, once again, Fellows and Members of the APHA can see the launching of another major recommendation of the Task Force. The Technical Development Board has appointed a Work Party to bring forth a statement of policy relative to field studies and surveys. These findings, after further study, are to be reported to the Governing Council for its consideration and adoption.

The St. Louis team and the APHA have taken action, thereby giving leadership to public health. Such forward steps become more effective as others follow, "He who reads can run." Not only should the APHA retool to this new model of leadership through surveys of community health services, but these studies, with that of St. Louis as a prototype, should offer a challenge to every forward-looking health professional, regardless of discipline or position, whether employed by official or voluntary agencies or in private practice. In the final analysis progress can be attained only by aggressive leadership; the St. Louis Study offers such an opportunity.

REFERENCES

1. Report of the American Public Health Association Task Force, Arden House Conference, October 12–15, 1956. A.J.P.H. 47, 2:218–234 (Feb.), 1957.
2. Press, Edward. Public Health and Hospitals in the St. Louis Area, A Mid-Century Appraisal. New York, N. Y.: American Public Health Association, 1957.

(The Journal is indebted to Vlado A. Getting, M.D., resident lecturer, University of Michigan School of Public Health, Ann Arbor, Mich., for assistance in the preparation of this editorial.)

LETTER TO THE EDITOR

To the Editor:

The National Foundation for Infantile Paralysis is keenly interested in assembling all available information about paralytic disease that appears in individuals triply vaccinated against poliomyelitis. Certain cases doubtless represent failures to achieve the desired immunologic response. Others, however, may be associated with infections

by other enteroviruses and not by one of the three known types of poliovirus.

In 1957, some 200 paralytic cases were recorded in persons who had received three prior properly spaced inoculations of Salk vaccine. Considerable difficulty was encountered, however, in obtaining from them satisfactory stool specimens for virus isolations and paired blood sera for antibody titrations. Accordingly, plans are being formulated to insure that during 1958 uniformly comprehensive laboratory examinations will be made in the cases of all such apparent failures of the Salk vaccine.

Since chapter chairman and state representatives of the National Foundation for Infantile Paralysis are usually among the first to learn about all new cases of paralytic poliomyelitis, an effort will be made through them to obtain specimens suitable for laboratory study. Dr. Jonas E. Salk has consented to have the necessary virus isolations and antibody titrations carried out in his own laboratory. If virus laboratory facilities are available locally duplicate specimens should be collected for the local laboratory and for Dr. Salk.

The purpose of this letter is to call your attention to the importance of obtaining complete laboratory studies on all cases of paralytic disease which may appear during 1958 in triply vaccinated persons and to enlist the support of all public health workers for this important undertaking.

THOMAS M. RIVERS, M.D.
Vice-President-Medical Affairs,
National Foundation for Infantile Paralysis, Inc., New York, N. Y.

June 9, 1958

Radiological Health Courses at Cincinnati

The Taft Sanitary Engineering Center in Cincinnati announces a course in "Medical and Biological Aspects of Radiological Health." The course is intended particularly for medical, dental, and biological personnel of local, state, and federal agencies who have to make decisions about radiological health problems. The public health implications of the applications of nuclear energy and radiation; long-term effects of radiation such as carcinogenesis, mutation, and life-span shortening; methods of reducing exposure, and administrative problems are among the elements of the course. For the two-week period of lectures, demonstrations, and laboratory sessions, it will be assumed that trainees have had no previous formal training.

The dates are October 20–31, 1958. There is no tuition. Applications and further information from The Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati 26, Ohio.

THE AMERICAN HOSPITAL ASSOCIATION'S REPORT ON "PREVENTION AND CONTROL OF STAPHYLOCOCCAL INFECTIONS IN HOSPITALS."

As a contribution toward a broader appreciation of the public health importance of staphylococcal and other hospital-acquired infections, the Journal takes pleasure in reprinting with permission the following bulletin recently issued by the American Hospital Association.

Last fall the Council on Professional Practice of the AHA, being deeply concerned over the rising incidence of hospital outbreaks, and accepting responsibility for helping to find a solution, appointed a technical committee to advise on appropriate action. The members were carefully chosen not only to constitute a distinguished and experienced group of experts but also to represent several of the other major professional groups and official agencies actively concerned in the problem.

The report is a basic outline of technical information and advice. It is designed specifically for the administrators of the member hospitals of the AHA and it should be read with this understanding. The treatment of the subject has been so comprehensive and the significance of the problem so broad that the report deserves the widest possible circulation among all who are interested.

Particularly noteworthy in the report is the recognition that hospital-acquired infections create a community health problem. On discharge from the hospital, infected patients bring virulent, "epidemic" often antibiotic-resistant, strains into the home where they may and often do spread to familial contacts. Also the report emphasizes to the hospital administrators the value of assistance from official local, state, and federal health agencies in the form of epidemiological consultation, laboratory diagnostic services and specific review and advice on nursing technics and procedures.

The opportunities for the health departments to render a valuable service and to strengthen the bonds of mutual respect and common purpose are great. Let us hope they will be adequate to meet this challenge.

Prevention and Control of Staphylococcus Infections in Hospitals[1] (Bulletin 1) May 21, 1958

To: Administrators and Chiefs of Staff in All Hospitals

Knowledge of Current Situation

1. It is clear that throughout the world, in spite of the enormous success of antibiotics (and, as will be mentioned below, to some extent because of this success) there remains an important problem of infections, a problem of special significance for hospitals. This report is concerned with such infections, particularly those caused by the coagulase-producing strains of staphylococcus aureus hemolyticus. The most obvious examples are impetigo and more severe in-

[1] The Committee on Infections Within Hospitals is charged with the responsibility of recommending American Hospital Association policies and programs on the prevention and control of all infections within hospitals. Because of the general interest in the problem, this bulletin is devoted to the staphylococcus. Two earlier bulletins on Asian Influenza have been distributed.

This bulletin was prepared by the Council on Professional Practice's Committee on Infections Within Hospitals consisting of: Dean A. Clark, M.D., chairman; William A. Altemeier, M.D.; C. P. Cardwell, Jr.; James P. Dixon, Jr., M.D.; Maxwell Finland, M.D.; Horace L. Hodes, M.D.; Martha Johnson, R.N.; and Alexander D. Langmuir, M.D., in consultation with Kenneth B. Babcock, M.D., of the Joint Commission on Accreditation of Hospitals; William H. Stewart, M.D., of the Public Health Service; and others.

fections in children, puerperal mastitis in recently delivered women, burn and postoperative wound infections, and pneumonia in debilitated patients. The staphylococcus may also be responsible for osteomyelitis, meningitis, septicemias, empyemas, boils and abscesses, otitis media, paronychiae, etc.

Disease-producing staphylococci frequently implant in the nasopharynx without overt disease, thus producing carriers. Indeed, the staphylococcus carrier-rate is a good index of the level of contamination of the environment.

2. Many hospitals have a serious problem with staphylococcus infections, and all hospitals have a potential problem. Information is inadequate as to the incidence of staphylococcus infections which are acquired in hospitals, but there is evidence that the number of such infections is increasing.
3. There appear to be innumerable strains of staphylococcus capable of producing infections. Many of these staphylococci are susceptible to antibiotics. Some are not. Infections with antibiotic-resistant staphylococci constitute the main difficulty. Hospitals are clearly the reservoir of most antibiotic-resistant strains. Strains from the community at large are predominantly sensitive to antibiotics. The strains carried by patients on admission are less frequently resistant than strains which are acquired in hospitals. Patients who acquire these infections in the hospital are potential spreaders of resistant strains to the community after discharge. One of the major factors in the current situation is the widespread use of antibiotics which eliminates susceptible strains of staphylococcus and leaves uncontrolled the resistant strains.[2]
4. Certain factors frequently found in hospitalization appear to make patients more likely to acquire such staphylococcus infections: a) routine indiscriminate use of antibiotics, especially for "prophylaxis"; b) long hospital stay; c) contact, direct and indirect, with infected hospital patients, staff members or personnel; d) crowding and inadequacy of facilities; e) prolonged operative procedures; f) prolonged use of continuous parenteral therapy through venipunctures or indwelling plastic tubing.
5. Certain factors in the host (patient) appear to increase susceptibility to infection: a) treatment with adrenocortical steroids; b) physical debility; c) chronic disease; d) prematurity; e) diabetes; f) bed sores; g) open wounds or breaks in the skin; h) chronic pulmonary disease.
6. Danger of infection seems to be especially great from direct exposure to people infected with the staphylococcus, although exposure to the same organisms in or on contaminated equipment, supplies, dressings, air, dust, wall or floor surfaces, linens, etc., may be equally as important. The physician, nurse or other attendant with a boil, paronychia, abscess, or nasopharyngeal infection with a virulent strain is particularly hazardous.

Recommendations

I. All hospitals should establish Committees on Infections, to devote particular attention to infections which are acquired in hospitals so they may be reduced to the lowest possible minimum.[3]
   A. It is suggested that the Committee on Infections include, where possible, a bacteriologist, a pediatrician, a surgeon, an internist, a nurse, and a hospital administrator. The local health officer should be urged to serve as a consultant to the committee. The committee should report periodically to the executive committee of the medical staff.
   B. The functions of the Committee on Infections should include at least the following:
      1. To establish a system of reporting infections among patients and personnel, such a system being essential to a proper understanding of infections which are acquired in hospitals. The committee should have access to all reports of infections anywhere in the hospital.
      2. To keep records of infections as a basis for the study of their sources and for recommendations regarding remedial measures.
      3. To distinguish to the best of its ability between infections acquired in the hospital and those acquired outside.

[2] It is not known whether resistant strains of this organism actually acquire resistance after exposure to the antibiotics, or are resistant to begin with and are simply unmasked by the suppression of susceptible strains—although the latter is thought to be the case. From a practical point of view it does not matter which theory is correct.

[3] The Joint Commission on Accreditation of Hospitals is being asked to consider the establishment of a Committee on Infections as a major factor in the accreditation of a hospital. Bulletin 17 of the Joint Commission contains recommendations on the subject.

4. To review the hospital's bacteriological services to make sure that such services are of high quality and are accessible either in the hospital itself or in an outside laboratory. Bacteriophage typing, if not available in the hospital, may be sought, as needed, through official local and state health agencies.
5. To review aseptic techniques employed in operating rooms, delivery rooms, nurseries, and in the treatment of all patients with infections, and, if indicated, to recommend methods to improve these techniques and their enforcement.
6. To make vigorous efforts to reduce to the minimum consistent with adequate patient care:
   a) Use of antibiotics, especially as "prophylaxis" in clean, elective surgery
   b) Treatment with adrenocortical steroids
7. To undertake an educational program to convince medical staff and hospital employees of the importance of reporting to responsible authorities when they have skin infections, boils, acute upper respiratory infections, and the like.
8. To establish techniques for discovering infections which do not become manifest until after discharge from the hospital, it being known that such infections are often overlooked because they may not be apparent until several weeks after the patient has left the hospital. Two approaches to discovering such infections are suggested:
   a) An attempt to trace the source of any infection with which a patient may be admitted. For example, if an infant is admitted with staphylococcal pneumonia or a recently delivered mother with mastitis, the hospital where delivery occurred should be determined and informed of the infection so that it can seek possible sources of infection.
   b) Periodic telephone polls on a random sample of discharged patients (particularly recently delivered mothers, newborns, and post-operative patients) to ascertain their state of health and, in case of any indication of infection, to follow them up. Such surveys have proved quite simple and quite valuable. A detailed account of the method is given by Ravenholt and others in the October 1956 issue of the American Journal of Public Health.

II. Hospital administration should undertake the following measures to assist in the control of infections:

   A. Diligent maintenance of the general cleanliness of *all* areas in the hospital, not simply in those associated with operating rooms, delivery rooms, and nurseries. Other possible sources, such as dust, air pollution (special attention should be given to ventilating and air-conditioning systems and their filters), and floors must also be considered as potentially important factors in the spread of infection. There should be regular inspections of the hospital for general cleanliness.
   B. Special studies among staff and personnel to uncover silent carriers of staphylococcus, especially in epidemic situations accompanied by repeated cases traceable to the same organism.
   C. Appropriate measures for the treatment of all carriers who persistently show heavy growth of epidemic strains of staphylococcus in nasopharyngeal cultures or who are identified by epidemiological evidence.
   D. Transfer of such carriers and personnel with skin infections, boils, acute upper respiratory infections, and the like from locations such as operating rooms, delivery rooms, food-handling positions, and nurseries to other duty stations in the hospital. Usually such transfers have proved to be sufficient to control the problem, but occasionally leave of absence for a persistent carrier has been necessary.

III. Hospitals should initiate or participate in community programs to control infection through cooperation with other hospitals, local medical societies, local health departments, and other groups.

General Comment

1. Occasionally, an entire hospital, a whole community, or a large area seems to become subject to an epidemic strain of staphylococcus. Why this occurs is not known. Its occurrence, however, points up the need for more general recognition and study of staphylococcus infections.

2. Among the agencies from which consultation and assistance concerning infection problems may be sought are the following:
   a) The American Hospital Association, the American College of Surgeons, and the American Academy of Pediatrics (especially for newborn infants) which will furnish upon request the names of suitable consultants.
   b) Local and state health departments which, in many instances, have experts on their staffs.
   c) The Communicable Disease Center of the U.S. Public Health Service, Atlanta, Georgia, whose assistance may be obtained through local and state health departments.

3. Valuable background information and discussion about the infection problem can be found in:
   a) Conference on staphylococcal infections. (Symposium) Journal of the American Medical Association. 166:1177–1203, March 8, 1958; (Editorial p. 1205).
   b) Observations relative to the nature and control of epidemic staphylococcal disease. F. H. Wentworth and others. American Journal of Public Health. 48: 287–98, March 1958.
   c) New York (State) Department of Health Guide for the prevention and control of infections in hospitals. Albany; 56p. illust. 1957.
   d) New York Academy of Sciences. Staphylococcal infections: a symposium. The New York Academy, 1956. 57–246 p. illust., tables. (Annals of the New York Academy of Sciences, 65:57–246).
   e) The problem of postoperative wound infection and its significance. W. A. Altemeier. Annals of Surgery, 147:770 1958.

Edwin L. Crosby, M.D.
Director

Educational Qualifications for Public Health Veterinarians

The Report on Educational Qualifications of Public Health Veterinarians, prepared by a subcommittee, has been approved by the Committee on Professional Education for distribution to a group of veterinary public health and other experts for comment and criticism. It is the hope that this report will be ready for consideration by the Governing Council at St. Louis. If approved it will be published in the American Journal of Public Health and reprints made available for widespread distribution.

The committee invites comment also from readers of the Journal. For this purpose copies are available on request from Committee on Professional Education, American Public Health Association, 1790 Broadway, New York 19, N. Y.

CLEARING HOUSE ON PUBLIC HEALTH SALARY INFORMATION AND PERSONNEL NEEDS

Recruiting Employers More "Choosy"

Representatives of business and industry have fewer jobs to offer this year's college graduates than last and are being selective in their hunt for college graduates. This conclusion is reported by the University of Pennsylvania's Placement Service in a new periodic report to business and industry by the university. "Of Mutual Interest," as the report is called, indicates that "the future looks bright through the haze of the current recession." The majority of opportunities are in engineering, sales, insurance, and retailing; the chronically oversupplied fields are newspaper, radio and television, advertising, and personnel.

Salaries are reported edging higher with increases in most fields from 2 to 5 per cent over 1957. A table of monthly starting salaries for 1952 and the last three years for three categories—engineers, business and liberal arts, and women—is shown. Engineers' salaries are the highest in each of the four years but the gap is being narrowed. Their starting salaries went up 19 per cent between 1952 and 1958; those for business and liberal arts, 50 per cent; for women 40 per cent. Women's beginning salaries in each of the years were one-third or more below those of engineers, and about one-fourth of those below business and liberal arts.

More Recruitment Material

"No longer does the high school graduate step forth timidly, grades in hand, to find a place in the great, wide world. Today, the world crowds into the high school seeking to catch the brightest students while they're young." Thus the opening sentences of "Catch Them While They're Young," a brief article on "Open Season at Career Days." The article apears in "Gist" the first issue of a newsletter published by the National Committee for Careers in Medical Technology. This committee in turn is sponsored jointly by the American Society of Clinical Pathologists, the American Society of Medical Technologists, and the College of American Pathologists.

"Gist" lists 8 recruitment aids that are available as a packet or singly and are designed for use in vocational counseling, community career days, and other recruitment activities. Also described is the film, "Career: Medical Technologist," which is for rent without charge. This first issue also details the history and the hopeful prospect that the U. S. Civil Service Commission will create a professional category for technologists which will automatically up the top annual salary 30 per cent above the present figure. "Gist" and the other materials are available from the National Committee for Careers in Technology, 1785 Massachusetts Ave., N.W., Washington, D. C.

North Carolina gets into the recruitment aids movement by way of "Community Health," the quarterly organ of Hospital Saving Association (Blue Cross-Blue Sheld) of the state. The summer issue is devoted to a description of seven health "careers that count and the source of information on each—nurse anesthetists, practical nurses, x-ray technicians, laboratory technicians, dietitians, physical therapists, and medical record librarians." Articles on how animals help medicine and on Indian cures and causes in North Carolina, with apt and attractive illustrations, help to stimulate interest. Hospital Saving Associations, Chapel Hill, N. C.

Wisconsin joins the recruitment

chorus through the March issue of "The Crusader," which is the monthly bulletin of the Wisconsin Anti-Tuberculosis Association. Devoted to careers in nursing, there are lilting descriptions of the public health nurse with opportunities unlimited and the occupational health nurse who must be nurse, counselor, student. In story form the various other opportunities, hospital nursing, nursing education, and the route by which the top jobs are reached, are described. The Crusader is published at 1700 West Wells St., Milwaukee. No information as to extent to which the issue is available.

Finally, the National Dairy Council makes a bid for home economists with a "Stop to Consider" leaflet before you decide on your career. Although written specifically in relation to a Dairy Council career, much of the information is applicable to other health work for home economists. 111 N. Canal St., Chicago 6, Ill.

Practical Nursing As a Career

"On the Way Up," illustrated in color with a nurse on a rocket headed for the moon, is a folder devoted to the advantages, for men and women, of becoming a practical nurse. There is a list of 23 questions and answers with some of them specially emphasized to catch the interest. Marriage does not interfere with this career, there is time for fun, nursing is a prestige profession, men may become practical nurses, training is not expensive, and there are no correspondence courses.

This is a recruitment piece that ought to "pull with high school youngsters planning their future work. It is designed for schools of practical nursing and especially for vocational counselors and others in a position to stimulate the interest of young people in a practical nursing career. National Association for Practical Nurse Education, 654 Madison Ave., New York 21, N. Y.; $5 per 100.

Health Education Career Promotion

"Directing people onto the road toward health is the job of the public health educator and the school health educator," is the description of a health educator in "A Career in Health Education" appearing in "Health" of April, 1958. In this monthly magazine of the American Osteopathic Association, Helen Westerberg, associate professor of health and physical education, George Williams College, introduces young people to the facts about health education as a career. She tells them what sort of agencies they will work for if they choose this career, what sort of persons they need to be, what training they need, and what salaries they may expect. She describes the public health educator and the school health educator separately. The need for public health educators and school health educators is far beyond the demand. Health education has become a new career in America. It is worth careful investigation.

Employment Facts About Nurses

"Continuing Demand for More Nurses" is the first heading in a booklet just issued by the Women's Bureau of the Department of Labor. The purpose of "Nurses and Other Hospital Personnel: Their Earnings and Employment Conditions" is recruitment of more persons to the field of nursing. It describes the various ideas and methods that have been developed to find additional nursing personnel.

What the young person will want to know, what kind of work nurses do, what they are paid, what hours, working conditions, vacations, retirement benefits are briefly described. Included is a table of 1956–1957 salaries for four grades of nurses, for nursing aides, prac-

tical nurses, and other hospital personnel such as dietitians, social workers, physical therapists, record librarians, and x-ray technicians.

Also available is a leaflet based on the larger pamphlet, a memo addressed to communities in order to give them in capsule form the background information on which to build a community recruitment program.

Government Printing Office, Washington 25, D. C.; 15 cents for the report; 5 cents for the leaflet.

Million More for Nurse Recruitment

The National League for Nursing has received nearly a million and a half dollars from the Sealantic Fund (John D. Rockefeller, Jr., financed) for what is described as "a broad program of aid to the fields of education for nursing and utilization of nursing services." Five general areas of activity will be supported by the $1,473,800 grants.

An intensified program to encourage recruits into the nursing field will use $411,000 over a four-year period to intensify NLN's recruitment program. The League will double its vocation information program, help to develop recruitment materials, and expand the Future Nurses' Clubs.

A grant of $165,000 enables the League to continue for four years a consultant service in Junior College Education in Nursing. In this program the nursing curriculum is shortened to two years and is part of the general educational system rather than being concentrated within hospitals. As a part of this program Teachers College of Columbia University was granted $10,000 for an intensive six-week summer training course for teachers of nursing to man the Junior College program.

As a part of the grant the League has $215,000 to help selected universities that are carrying on pilot demonstrations to increase the number of graduates qualified as nurse teachers. The goal of 70,000 student admissions to two- and three-year nursing programs for 1970 makes imperative an immediate increase of postgraduate nurses qualified for nursing education.

An additional $322,800 is allocated for scholarships in 32 universities and colleges to candidates for baccalaureate degrees in nursing.

And finally $350,000 is to be used for an intensive study of how nursing and other personnel and the physical equipment of a hospital may be most effectively and economically used in the interest of the patient.

Understanding Civil Service

"What's Ahead in Civil Service?", No. 258 in the Public Affair Pamphlets series, describes for the citizen how the civil service—federal or state—works. It is perhaps most usefully designed for the person considering a government career. How the spoils system came about historically, how it was in turn largely superseded by the Civil Service System based on merit—description of these helps to dispel the prevalent notion that government employees are largely political hangers-on. In fact a surprisingly small percentage of workers are reported displaced in a change of federal administration.

However, it is recognized that practice of civil service principles varies and tends to be less observed in state and local than in the federal government. In the latter, the post office department is handicapped in that appointments require senatorial approval.

The hiring and firing procedures, pay scale, promotion, and training are each described. The variety and interest of government work makes some people stay a lifetime because they are unable to imagine any jobs they would enjoy more.

Public Affairs Pamphlets, 22 E. 38th St., New York 16, N. Y.; 25 cents; reductions on quantity orders.

CREDIT LINES

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Help on Migrant Workers

The Public Health Service, through its Division of General Health Services, has prepared two lists for the use of those dealing with migrants. The first is a list of "State Personnel in Official Agencies Concerned with Agricultural Migrants." Where such positions exist the following persons are listed for each state: state health department personnel with special interest in migrants, farm placement service, coordinators of education for migrants, migrant ministry of the home missions division, National Council of Churches, official state migratory committees, and in the absence of the last-named, persons named by the governor as liaison with the President's Committee on Migratory Labor.

The second listing is of migrant health education films available in both English and Spanish with information as to purchase or loan. Included is a list of films designed for use in developing community understanding of the migrant and his problems. Users are asked to evaluate the latter type of films used during the season and to provide samples of other visual aids found useful.

The lists are available from the Program Development Branch, Division of General Health Services, Public Health Service, Washington 25, D. C.

Canada's and the World's 10 Years

"Ten Years of Health Progress," by the Canadian Department of National Health and Welfare, celebrates its own 10 years of federal health grants to provinces and the 10 years of WHO. This progress is reported in the May issue of "Canada's Health and Welfare."

A general survey of the decade's progress—the extension of knowledge from the few to the many, the infectious diseases that are disappearing, more babies born to live rather than to die—is the first item of the review. Also the new problems—the stresses that accompany progress, mental disease, and accidents. Summing up thus, "The past ten years of health progress have clearly demonstrated that man has in his hands tools that can change the world, bringing to all men new vigour, health, and hope. The future is bright, if the tools are used fully and forcefully and everywhere."

Another section is devoted to, "WHO, What It Is and What It Does." This brief description is useful in giving readers a quick over-all look at the complex of activities represented by WHO.

Finally, there is the summary of Canada's own health situation and a review of the 10-year experience with grants-in-aid for health services in the provinces during which time nearly a quarter of a billion dollars had been spent in the program through 13 different grant categories. Each dates back to 1948, except the grants for child and maternal health, for medical rehabilitation, and for laboratory and radiological services which were first aided in 1953. The largest grants, more than $75,000,000, have been made for hospital construction. The general public health and mental health grants were each more than $35,000,000 in the 10-year period; tuberculosis control was nearly $34,000,000 and cancer control, $19,000,000.

New Health Education Journal

The International Journal of Health Education made its bow as a quarterly

with the January, 1958, issue. It is the official organ, with issues in both English and French, of the International Union for Health Education of the Public, which has its headquarters in Paris. In the opening number, Professor Jacques Parisot, president of the International Union, defines health education as "education for living," a means of bringing "to each member of a group an enrichment of his personality, of his physical and mental health, a true appreciation of his rights . . . and a sense of his responsibility towards the community."

The International Union, founded in 1951, is essentially a union of national bodies—national committees, societies, associations, or other national voluntary health agencies, the aims of which include health education of the public. Individuals may become associate members, as may organizations wishing to help in the work of the union.

The American National Council for Health Education of the Public (ANCHEP) has been organized to provide a common meeting ground for organizations and individuals interested in the international aspects of health education of the public and to serve as the representative of nongovernmental groups and individuals in activities of the International Union.

The journal's editor is Annette LeMeifour, chief of publications of the League of Red Cross Societies. Manuscripts, inquiries, and subscriptions from the United States should go to ANCHEP, Room 3013, 120 Broadway, New York 5, N. Y.

Pharmacists and Health Questions

"Pharmacists Guide to Health and Welfare Services of Official Agencies in New York State" has been prepared jointly by the Pharmaceutical Society of the state and the State Health Department and published by the latter. It is designed for "the pharmacist in helping the people who come to him for information about health and welfare problems." Nearly a third of the 84 pages are devoted to a directory of facilities. Much of the information is the same as that contained in the "Clergyman's Guide" prepared some years ago jointly by the State Health Department and ministerial groups.

New York State Department of Health, 84 Holland Ave., Albany. No information on out-of-state distribution.

Water Reclamation and Utilization

The third report on the "Study of Waste Water Reclamation and Utilization" outlines the final results of the three-year study conducted by the Sanitary Engineering Research Laboratory, University of Southern California, under the direction of Professor Robert C. Merz (A.J.P.H. 46, 4:539, 1956) and sponsored by the State Water Pollution Control Board. Among conclusions drawn from the studies are that it is feasible for a group of farmers to organize, finance, and construct a reclamation system to utilize sewage effluent for irrigation of field crops; there is a need for further study of the effect on crops of irrigation with primary sewage effluent; irrigation of golf courses provides an ideal use for reclaimed water if reasonable public health standards are maintained; and the reclamation of waste water for ground water recharge through injection wells is possible. California State Printing Division, Documents Section, Sacramento 14, $1.40.

Mental Health Brochures from Texas

"The Opening Door: A Report on Texas State Hospitals," "No Place for Tommy: A Study on Emotionally Disturbed Children in Texas," both 1958

publications; and "Can an Adult Change?," of 1957 vintage, are being distributed by the Hogg Foundation for Mental Health of the University of Texas.

"The Opening Door" is a brief summary of the 13-volume findings of a two-year study of Texas State hospitals made by the Texas Research League. "No Place for Tommy," largely in the form of letters, is based on a 1957 study by nine Junior Leagues in Texas and uses Tommy's story to tell about youngsters whose emotional problems require residential care.

"Can an Adult Change?" is answered in the affirmative, particularly if he can acquire "open-mindedness, a belief in the goodness of human nature, a faith in the future, and a confident relationship to whatever he defines as eternal. . . . Continuous growth and life itself can become synonymous."

Each is available from the Hogg Foundation for Mental Health, University of Texas, Austin 12; 25 cents each.

A Novelty in Health Education

"Saps" is the self-chosen name of a group of 15 in Waterville, Me. They meet once a week (before church) with physicians on the Thayer Hospital staff to discuss diseases, the workings of the hospital, and community relationships. More formally they are the Society of Amateur Physicians and Surgeons.

This is the introduction to the May, 1958, project of the Public Health Service Division of Special Health Services which its chief, Albert L. Chapman, M.D., began in the New York Regional Office and continued in his present assignment. He uses the title story as a spring-board for suggesting that interest of citizens in health matters can be channeled and developed in many directions by a skillful health educator. For example, one of the Waterville "Saps" on the basis of his contacts with the doctors, persuaded five of his friends to have physical examinations.

These project write-ups—short, informal, informative—should come to the desk of every public health educator.

Worth Acquiring

"Toys . . . The Tools for Children" is reported to be "the first authoritative full-color toy selection guide." Its author is June Frantzen, registered occupational therapist; its publisher, the National Society for Crippled Children and Adults. The 16-page booklet is profusely illustrated, has 75 color photographs and is accompanied by a key chart. It is designed to guide in choosing toys that will stimulate such activities as reach, grasp, release, finger skills, coordination and related skills.

The brochure was based on a study at several Easter Seal rehabilitation centers during which 100 handicapped children were observed biweekly for four years and 50 normal children for one or two play periods, and 10 normal and 30 handicapped infants, respectively, for periods of a year and a half and three years. Guidance in toy selection was given to 150 parents.

"Toys—The Tools of Children," National Society for Crippled Children and Adults, 11 S. LaSalle St., Chicago 3; $1.

"Your Community and Mental Health" represents another in the ever-expanding ripple started by the National Health Forum of 1957. "Steps for Today Toward Better Mental Health," the report of that forum, is the basis for this new Public Affairs Pamphlet. Illustrative material has been added and the whole put into lay language. The final word is that there is so much to do in the field of mental health that everyone can take part to develop a better climate for mental health. The author is Elizabeth M. Dach who helped in the preparation of the forum report.

Public Affairs Pamphlets, 22 East 38th, New York 16, 25 cents. Reductions for quantity orders.

"Rehabilitation of Handicapped Homemakers . . . Films, Publications, Exhibits" is a list of available materials developed by the University of Connecticut in connection with a research and demonstration project. This project, "Work Simplification in the Area of Child Care for Physically Handicapped Women," is now in its third year, in cooperation with the U. S. Office of Vocational Rehabilitation. The university, in order to make known the availability of these materials as widely as possible, offers to distribute the list widely, particularly in quantity for relevant regional, national, or international meetings. Home Economics Research Center, University of Connecticut, Storrs.

Annual Reports

"For the Record" is the report of the Association for the Aid of Crippled Children for the year ending October 1, 1957. Among the items reported on are two demonstrations in rehabilitation in New York City, one in Manhattan in cooperation with the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center. The other was in Queens County which does not have the specialized facilities of Manhattan and which it was thought represented fairly adequately other communities of comparable size in the United States.

The Queens project has now been turned over to another agency with only advisory assistance from AACC. The society has largely withdrawn from the policy-making aspects of the Manhattan project, but is continuing its interest in the educational and research aspects. In the meantime it is evaluating the demonstrations so that the experience can be used elsewhere.

The society's annual meeting, held recently, was devoted to a discussion of research. The theme song was that the aim of research, whether basic or applied, is contribution to knowledge whether or not a practical application is in view. Knowledge as a contribution to culture, rather than as flexing of the country's power muscles, is the basic reason for research.

Leonard Mayo is director of AACC, 345 East 46th St., New York, N. Y.

The 1957 Annual Report of the W. K. Kellogg Foundation is a detailed document illustrated with numerous photographs. Here the role of a foundation is designed as "not that of an entrepreneur but rather that of a catalytic agent to accelerate community selfhelp."

The various activities to which the foundation gave support are classified in the fields of medicine and public health, hospitals, nursing, dentistry, agriculture, and education. More than a third of 1957 appropriations were in behalf of educational activities and nearly a third for medicine and public health projects. Aid in developing programs "for reenforcement of students' understanding of the preventive aspects of disease, with greater comprehension of the social, economic, and environmental factors related to the health of the individual, the family, and the community" were supported in 1957 in eight medical schools of the country. Support was given to a state health department "to develop field training centers for public health personnel, including physicians, nurses, sanitarians, health educators, and others." Also assisted was the development of an evaluation service for foreign medical graduates.

Geographically, more than 80 per cent of funds supported projects in the United States. Of the less than one million granted in other countries just over 50 per cent went to Latin American countries and between 20 and 25 per

cent each to Canada and European countries.

The report pays tribute to the late Haven Emerson, M.D., longtime member of the Kellogg Board, "of whom it can truly be said that for him the welfare of the people was no empty phrase but rather a beacon which guided unwavering steps over his long and distinguished life."

Emory Morris, D.D.S., is president and general director of the W. K. Kellogg Foundation, Battle Creek, Mich.

"Annual Report, The Commonwealth Fund, 1957" reports its "resources can be put to most effective use by concentration on activities that have long-range significance in the encouragement of better and more comprehensive medical care." By way of carrying out this goal more than half of the $3,800,000 appropriated in 54 separate grants in 1957 was directed to medical education and community health activities and another 15 per cent toward fellowships and awards in the medical and health field.

An example of the type of health fellowship is one in preparation for a career in social medicine whereby the student combines study at the Columbia School of Public Health and Administrative Medicine with work in the "Comprehensive Care and Teaching Program" at the Cornell University Medical College. The latter program is also being supported by a grant.

Programs supported that are especially related to medical education and public health include a sociological study of medical schools, planning for a health center development at a university, and a training and research project in the social aspects of health.

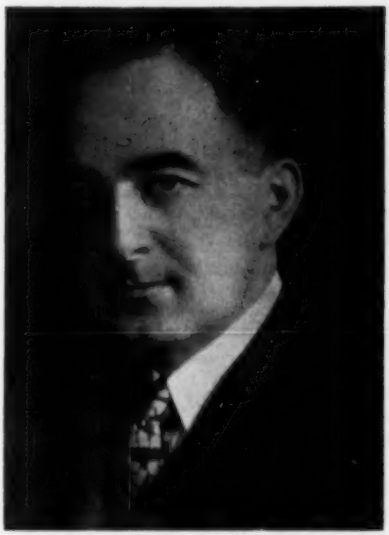
A review and reappraisal by the fund of its activities during the year led to a reaffirmation by its board that the broad field of health affords "the best opportunity for accomplishments contributing to the welfare of mankind. . . . For the next few years major emphasis should remain on medical education . . . and the interest in community health, in nursing and medical fellowships and awards, in related publications, and in the long-established program of international fellowships should be continued." One East 75th St., New York, N. Y.

ASSOCIATION NEWS

EIGHTY-SIXTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
ST. LOUIS, MO.—OCTOBER 27–31, 1958

Two More New Staff Members

James Leonard Troupin, M.D., M.S.P.H., for the past seven years chief, Section of Assistance to Educational Institutions, WHO, working with professional education problems in the Geneva office, joins the staff as assistant director for professional education on September 1. A native of France, Dr. Troupin received his M.D. degree from Tufts College of Medicine in 1932 and his M.S.P.H. from Columbia University in 1942, where he was also associate professor of public health practice. He has three years of experience each as an associate physician in the U. S. Indian Health Service and with the New York State Health Department as health officer in training and later as assistant district health officer, and two years as district health officer in the New York City Health Department.



James L. Troupin, M.D., M.S.P.H.

Dr. Troupin was instructor in epidemiology, Puerto Rico School of Tropical Medicine, in the summer session of 1942 and in 1948 was a public health consultant in the Institute of Mental Health in Public Health in Berkeley, California. During the same year he was public health consultant to the Hoover Commission.

WHO has published a number of Dr. Troupin's writings, among them, "Nomenclature and Classification of Health Personnel," "Medical Schools and Physicians: Quantitative Aspects," "Report of a Survey of Faculty of Medicine, Port-au-Prince, Haiti," "Medical Education in Israel," and "Yaws Control as a Means for Promoting Rural Health Services."

Dr. Troupin is a diplomate of both the American Board of Preventive Medicine and the National Board of Medical Examiners and a member of the Association of American Medical Colleges. He is a Fellow and life member of the Health Officers Section, APHA.

Edward Wellin, Ph.D., on September 1 will become chief investigator for the three-year study on the "Relation Between Public Health and the Behavioral Sciences" made possible by a grant from

Edward Wellin, Ph.D.

the National Institute of Mental Health.

Dr. Wellin, a native of New York State, received the A.B. degree (magna cum laude) from Syracuse University in 1949, Ph.D. in Social Anthropology from the Department of Social Relations, Harvard University in 1955, and M.S. in Hygiene from the Harvard University School of Public Health in 1956. Between 1950 and 1954 Dr. Wellin was anthropologist on the Peruvian staff, first of the Rockefeller Foundation's Division of Medicine and Public Health and later of the Pan American Sanitary Bureau. Since 1954 he has been at the Harvard School of Public Health first as research fellow in anthropology in the Department of Nutrition, then as Russell Sage resident, later jointly coordinator of social research in the Cambridge Health Department and research fellow in social anthropology in the school, and presently as research associate.

Dr. Wellin is the author of a number of articles including "Cultural Factors in Nutrition" in the Nutrition Reviews 1955, "Maternal and Infant Feeding Practices in a Peruvian Village" in the Journal of the American Dietetic Association, and "Implications of Local Culture for Public Health" to appear shortly in Human Organization.

Dr. Wellin is a Fellow of the American Anthropological Association and a member of the American Public Health Association; member, Phi Beta Kappa, and Delta Omega, public health honorary fraternity.

Uniform Accident Definitions

"Uniform Definitions of Home Accidents" was published early in 1958 by the Public Health Service. As indicated earlier (A.J.P.H. 48:5, p. 694) this was the joint product of a conference sponsored jointly by the Service, the APHA, and the National Safety Council, after stimulation by APHA's Subcommittee on Home Accident Prevention.

Once the manual was published APHA was active in distributing it in strategic places. In addition to intramural distribution, as it were, to the members of the Accident Prevention Committee, the Technical Development Board, the Executive Board, and the secretaries of the Affiliated Societies and Branches, multiple copies were sent to WHO in Geneva and to the Pan American Sanitary Bureau.

The dean of each school of public health received multiple copies as did the W. K. Kellogg Foundation, the Rockefeller Foundation, the Association for the Aid of Crippled Children, and the National Health Library. Copies went to the editors of the Journal of the American Medical Association, the Journal of Pediatrics, the Journal of Infectious Diseases, and the Journal of the Canadian Public Health Association.

86th ANNUAL MEETING—OCTOBER 27–31, 1958

HOW TO MAKE HOTEL RESERVATIONS FOR THE ST. LOUIS MEETING

A HOUSING BUREAU will be operated by the St. Louis Convention Bureau. Since all requests for rooms will be handled in chronological order, you are urged to send in your reservation as quickly as possible on the form below. (See map with location of hotels on page 1086).

HOTELS HOLDING ROOMS FOR THE APHA AND RATES*

Hotel	*Single*	*For Two Persons* *Double Bed*	*Twin Beds*
Ambassador-Kingsway	$ 6.50-$ 9.00	$ 9.00-$14.00	$10.00-$14.00
Baltimore	3.50- 7.50	5.00- 9.00	6.00- 10.00
Bel Air Motor Hotel	8.00- 11.00	9.00- 15.00	10.00- 16.00
Chase	9.50- 13.00	13.00- 16.00	14.00- 17.00
Claridge	4.50- 8.00	6.50- 10.00	7.50- 12.00
Coronado	7.50- 12.00	9.50- 16.00	13.50- 16.00
DeSoto	4.00- 6.50	6.00- 7.50	8.00- 10.00
Lennox	6.50- 11.00	7.50- 11.00	11.00- 13.00
Mark Twain	6.00- 9.00	8.00- 10.50	10.00- 11.50
Mayfair	6.50- 11.00	7.50- 13.00	11.00- 12.00
Melbourne	6.25- 9.75	8.75- 10.75	11.50- 13.75
Park Plaza	11.00- 15.00	15.00- 17.00	15.00- 20.00
Sheraton-Jefferson	7.50- 10.50	10.50- 13.50	13.00- 17.00
Statler	7.00- 12.00	10.00- 14.00	11.50- 15.00
Warwick	4.50- 8.00	7.50- 10.00	8.50- 12.00

* Parlor Suites available in all these hotels. Rates on request.

HOTEL RESERVATION FORM

MAIL TO: Miss Shirley Woerner, Manager
Hotels Convention Reservation Bureau, APHA
911 Locust Street, Room 406
St. Louis 1, Mo.

.....1958
(Date)

Please make the following reservation:

Hotel .....First Choice

Hotel .....Second Choice

Hotel .....Third Choice

Single rooms are very scarce; please arrange for sharing if possible

Arrival 1958

Departure 1958

..... Single room(s) for ..... person(s). Rate $..... to $..... per room

..... Double Bedroom(s) for ..... person(s). Rate $..... to $..... per room

..... Twin Bedroom(s) for ..... person(s). Rate $..... to $..... per room

The names and addresses of all persons who will occupy the room(s) requested must be listed. Please be sure to indicate arrival and departure hours and dates. If you wish to cancel or make any change in your reservation, write to the Hotels Convention Reservation Bureau, and *NOT* the hotel to which you were assigned.

....

....

....

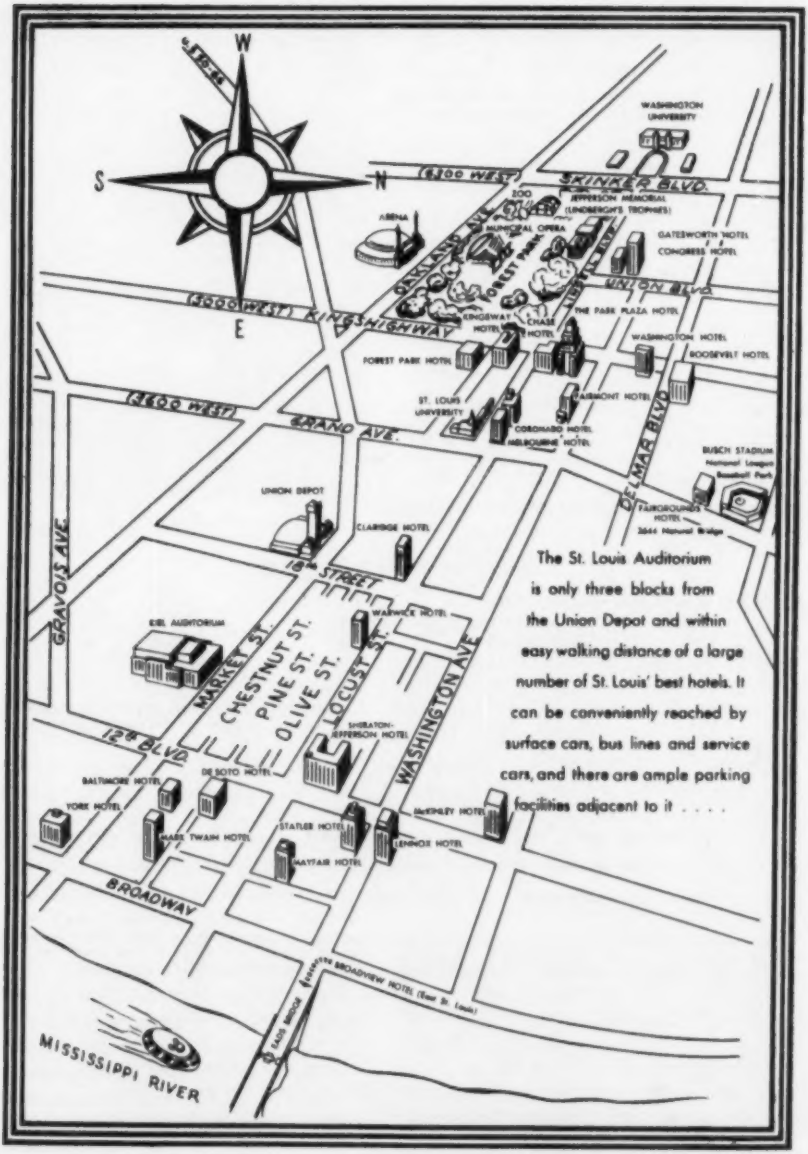
....

Name of Applicant .....

Street ..... City ....., ... Zone .... State .....

Note: You will receive confirmation direct from the hotel.

Map of Downtown St. Louis Showing the Location of Hotels and Kiel Auditorium



NEWS OF AFFILIATED SOCIETIES AND BRANCHES

APHA AFFILIATED SOCIETIES AND BRANCHES

SOCIETY AND SECRETARY

ALABAMA PUBLIC HEALTH ASSOCIATION, Norma L. Chandler, State Health Dept., Montgomery
ARIZONA PUBLIC HEALTH ASSOCIATION, Mrs. Verona Massey, State Dept. of Health, Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Emanuel H. Pearl, 2220 Moorpark Ave., San Jose 28
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Byron O. Mork, M.D., University of California at Los Angeles, Los Angeles
COLORADO PUBLIC HEALTH ASSOCIATION, Mildred Doster, M.D., School Administration Bldg., Denver
CONNECTICUT PUBLIC HEALTH ASSOCIATION, E. Louise Ratcliff, M.P.H., Griffin Hospital, Derby
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, Calle 19 No. 511 Altos Vedado, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta
IDAHO PUBLIC HEALTH ASSOCIATION, Wesley O. Young, D.M.D., P. O. Box 640, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Gale E. Coons, State Board of Health, Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Office Bldg., Topeka
KENTUCKY PUBLIC HEALTH ASSOCIATION, Mrs. Rosalie Walters, 620 S. Third St., Louisville 2
LOUISIANA PUBLIC HEALTH ASSOCIATION, Andrew Hedmeg, M.D., State Dept. of Health, New Orleans 7
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Elizabeth Bishop, M.D., P. O. Box 638, Hardin
NEBRASKA PUBLIC HEALTH ASSOCIATION, Orville D. DeFrain, Lincoln-Lancaster County Health Dept., Lincoln
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Daniel T. Marley, P. O. Box 8066, Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Allan Marlowe, 295 Flatbush Ave., Brooklyn 1
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mrs. Kathleen Boland, State Dept. of Health, 84 Holland Ave., Albany
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, R. W. Brown, Bucombe County Health Dept., Asheville
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Christie Corbett, R.N., State Board of Health, Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Mrs. Virginia V. de Lara, Dept. of Health, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice Brady, R.N., State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, Wayne H. Garrett, City Hall, Fort Worth
UTAH PUBLIC HEALTH ASSOCIATION, Mrs. Virginia Cole, City Health Dept., 115 S. State St., Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 2088, Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Jack E. Mathews, State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Paul B. Shanks, State Health Dept., Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
SOUTHERN BRANCH, A.P.H.A., Betty Ficquett, State Board of Health, Columbia, S. C.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

Idaho Too Has a Task Force

"Improving Idaho's Health" was the theme of the 19th annual meeting of the Idaho Public Health Association in McCall, May 9–10. This theme was approached through three major subjects, the health of the school-age child, the health needs of the senior citizen, and community responsibility for improving health in Idaho. A half day was devoted to each subject with an introduction by a speaker, discussion by several panelists, and questions and discussion from the floor. This program was planned "to appeal to the large group of laymen who attend the annual meeting" as well as to the professionals.

The group established an ad hoc committee or "Task Force" to study the functions and administrative relationships of the Association, specifically its two functions as a voluntary organization for health promotion and as a body of professional health workers. It will also study relationships with other voluntary groups, with the Western Branch, and with APHA.

The seven-member Public Health Advisory Committee, created a year ago, was made a standing committee. Composed of citizens from various parts of the state with an active interest in health programs, it serves in an unofficial advisory capacity to the State Board of Health and acts as a state health council as well.

Mrs. Pete Bistline, president of the Idaho Mental Health Association, received IPHA's annual award for her volunteer activities in many phases of public health work, her support of the State Health Department and the Southeastern District, and her part in establishing a mental health center in Lewiston, her own community.

Leslie T. McCarthy, State Bar Association, Lewiston, was reelected president of the Association at the final session of this year's "March to McCall."

Kansas Honors the Late Dr. Winkle

The Journal is indebted to the secretary-treasurer of the Kansas Public Health Association, Evelyn Ford, for this story of its recent 16th annual meeting. Miss Ford was reelected to this position for the 13th consecutive year.

The 1958 annual meeting of the Kansas Public Health Association was held at Salina, Kans., May 14–16. Registration for the meeting totaled 160.

The association was honored by the presence of Berwyn F. Mattison, M.D., executive secretary of the American Public Health Association. His participation in the program was stimulating and much appreciated.

The highlight of the meeting was the Samuel J. Crumbine banquet at which the association honored posthumously the late Vernon M. Winkle, M.D., M.P.H., former director of local health services in the State Health Department. Dr. Winkle, past president of the association, passed away December 31, 1957. Mrs. Winkle was present to receive the Samuel J. Crumbine Medal, an award presented annually by the association for outstanding service in public health. With the award Mrs. Winkle was presented a framed photograph of Dr. Winkle, in color.

Special tribute was paid to Sarah E. Zeller, R.N., public health nurse of Edwards County, and James T. Newton, B.S., M.S., former director, environmental sanitation, Wichita-Sedgwick County Department of Public Health, with certificates of Special Service Recognition. Such recognition is presented to those who have given long and faithful service in the field of public health.

The retiring president was Waldo W. Wilmore, executive secretary, Kansas State Tuberculosis and Health Association. The following officers were elected for the year 1958–1959:

President: Samuel W. Hoover, sanitarian, Geary County Health Department

President-elect: H. R. Wagenblast, M.D., M.P.H., director, Salina-Saline County Health Department

Vice-President: Dorothy Woodin, R.N., director, Public Health Nursing, Wichita City-Sedgwick County Health Department

Secretary-Treasurer: Evelyn Ford, secretary, Local Health Services, Kansas State Board of Health.

The 1959 annual meeting will be held at Hutchinson, Kans., April 22–24.

Louisiana Sets a "Landmark"

The Louisiana Public Health Association reports that it is "the first state public health association meeting to schedule discussion of the complex field of accidents for every technical session." As such, Eugene L. Lehr, chief of program services of the accident prevention program, Public Health Service, suggested that in time to come LPHA might be regarded as "a landmark of the importance of community action in accident prevention." Other experts, both from Louisiana and the country at large

discussed various aspects of preventing accidents, including what Louisiana and other states are doing in prevention.

Awards were presented by the Awards Committee Chairman, Ben Freedman, M.D., at the opening and final general sessions. The top honor, the Axson-Choppin Award was given to Louisiana restaurateur, Bobby Pappas. The Dr. Felix Formento Award was presented to the women's editor of the "New Orleans Item," Laurraine Goreau, and to volunteer health worker of Lake Charles, Pearl Vincent.

Drs. Guillermo Vasquez and W. Carroll Summer, health directors, respectively, of Calcasieu and Ouachita Parishes, and Lucille Guidry, Northern Region public health nurse consultant, received C. B. White Awards. The committee chairman was himself surprised with the E. H. Barton Award, first established a year ago. Agnes Memorial Awards went to 14 employees of the State Health Department, 20-year service pins were won by eight public health workers in the state, and 278 health workers received certificates honoring from 10 to 20 years of service.

One morning was devoted to meetings of each of five sections, also largely devoted to accident prevention.

Lucille Sawyer, supervising nurse, Caddo-Shreveport Health Department, succeeded Velma Brusse, records consultant, St. Landry Parish Health Department, as president of LPHA. Other officers elected are:

First Vice-President: John Lemasson
Second Vice-President: A. G. Owens
Secretary: Dr. Andrew Hedmeg, director of local health services, State Department of Health
Treasurer: Lillian Edwards, regional health educator, State Department of Health.

Virginia Adopts a New Constitution

The one-day meeting of the newly affiliated Virginia Public Health Association had a General Session, one meeting each of six sections, a business meeting, and a dinner. A new constitution and a new seal were adopted for the association, and a resolution passed approving the state financing of meat inspection. The resolution calls for State Health Department jurisdiction over meat inspection services, but local jurisdiction over meat sold in their areas.

At the dinner meeting the featured speaker was John Knutson, D.D.S., chief dental officer of the Public Health Service, and immediate past-president of the American Public Health Association. He spoke on "Order Among Public Health Workers" with particular reference to changing public health practices to meet changing needs and changing science and technology.

The retiring president, David R. Wallace, D.D.S., dental director, State Health Department, was unable to be present because of the accidental death of his brother.

The newly elected officers are:

President: Thomas D. Lewis, sanitarian, State Health Department
President-Elect: James Suter, M.D., M.P.H., assistant director, Local Health Services, State Health Department
Vice-President: John M. Huff, M.D., director of Health, Norfolk
Secretary: William A. Dorsey, chief, Bureau of Laboratories, State Health Department
Treasurer: John E. Pipes, supervisor, Bureau of Sanitation, Richmond Health Department.

West Virginia's 34th Annual Meeting

About 250 persons attended the 34th Annual West Virginia State Health Conference, sponsored jointly by the State Public Health Association and the State Health Department. This was held in Clarksburg June 5 and 6, with two general sessions, two meetings of each of eight sections, and a banquet.

The highlighted speaker, Dwight Emery Harken, M.D., associate clinical professor of surgery, Harvard Medical

School, took as his topic, "Cardiac Surgery and Rehabilitation." The Charlottesville Regional Office of the Public Health Service was drawn upon extensively for participants. Of the 60 or more speakers, chairmen of sessions and discussion leaders and discussants, the vast majority represented West Virginia talent.

Cigarettes as a public health problem was the subject of an address at one general session. Luncheon guests of the Clerical and Vital Statistics Section had the opportunity to hear a talk by a foreign exchange student on "Experiences Behind the Iron Curtain."

Two "outstanding service" awards were presented at the banquet, respectively, to J. B. Baker, sanitarian of the State Health Department representing official personnel, and Thomas J. Blair, past president, West Virginia Water Service Company as a community health worker. Wanda Johnson, Kanawha-Charleston Health Department, was cited for obtaining 20 new members of VPHA during the year, the largest number for any member.

Bruce H. Pollock, M.D., director, Cabell-Huntington Health Department, was the retiring president; program chairman was B. S. Brake, M.D., director of the Harrison-Clarksburg Health Department.

New officers are:

President: Mrs. Oleta Riffe, nursing supervisor, State Health Department

Vice-Presidents: Eugene J. Powell, administrative assistant to director of disease control, State Health Department; Azel McCurdy, district personnel manager, Appalachian Electric Power Company

Executive Secretary: Paul B. Shanks, administrative assistant, State Health Department

Treasurer: Mrs. Bethel Adkins, secretary, State Health Department.

APHA membership application blank on page XXIII

EMPLOYMENT SERVICE

Annual Meeting Employment Service

An employment center will be located in the Scientific Exhibit area at the 86th Annual Meeting. See the official program and directional signs at the Meeting for exact location. The service will be sponsored by the Missouri State Employment Service and the Association. Professional personnel will be available to assist employers and employees. Vocational counseling will also be available. Binders containing copies of applications and position descriptions will be available for inspection by applicants and employers.

Employers and candidates are urged to file beforehand. This should be done through either your local state employment service office or the Association. The required forms will be available at both places. Filing by October 8 is necessary if records are to be forwarded to the Meeting. It will be possible to register at the Meeting also.

A conference room will be available at the center for use by employers and applicants. Early registration will facilitate appointment arrangements.

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Residency in Public Health—Two-year Board-approved residency in well established health department in California. Salary $755 per month; maximum age 35 years; California license required. Apply **Box PH-81,** Employment Service, APHA.

Medical Health Officer—for established rural county health department in central Illinois. Good personnel policies with vacation and retirement. Salary range $9,600–$12,000 for physician with public health training and experience. Contact W. T. Douglas, M.D., Hillsboro, Ill.

Qualified Public Health Physician—needed to organize, direct and supervise all activities of city public health department to be established, to serve Waterloo, Iowa, a city of 79,000. M.D. and M.P.H. required. Salary $15,000. Plan later to expand service to a county program, at which time county will add to salary. County population exceeds 116,000. Contact Mark A. R. Kuhn, M.D., 1016 W. Fourth St., Waterloo, Iowa.

Health Director—for growing county of 65,000 located adjacent to Kansas City, Mo. Modern health center recently completed. Three-year-old department with excellent opportunity for program development. Public health degree with some experience required. Salary open. Make application to Edward H. Fischer, M.D., 306 E. 21st Ave., North Kansas City, Mo.

Wanted: **Physician-Virologist**—Licensed or eligible for license in New Jersey. To be in charge of program in virology and to assist director in other divisional programs. Must have broad background in microbiology. Salary $10,800–$13,800. Retirement, insurance benefits. Apply: Director, Division of Laboratories, New Jersey State Department of Health, State House, Trenton, N. J.

Medical Deputy Health Commissioner—full time, Columbus, Ohio, Health Department, serving a population of 450,000. Qualifications: M.D. degree, eligibility for licensure in the state of Ohio, postgraduate degree in public health and at least one year of experience in public health work. Salary approximately $12,000, depending on qualifications and experience. Apply: O. M. Goodloe, M.D., Health Commissioner, Columbus Health De-

partment, 181 S. Washington Blvd., Columbus, Ohio.

Public Health Physician—full time, Columbus, Ohio, Department of Health, serving a population of 450,000. Qualifications: M.D. degree, eligibility for licensure in the state of Ohio, and completion of graduate training or experience in public health. Salary approximately $10,000, depending on qualifications and experience. Apply: O. M. Goodloe, M.D., Health Commissioner, Columbus Health Department, 181 S. Washington Blvd., Columbus 22, Ohio.

Chief, Bureau of Mental Health—Utah Health Department. Starting salary on one of these steps: $1,010–$1,060–$1,115–$1,170–$1,230. Write to Merit Council, 174 Social Hall Ave., Salt Lake City 11, Utah.

Chief, Bureau of Children's Services—Utah Health Department. Starting salary on one of these steps: $1,010–$1,060–$1,115–$1,170–$1,230. Write to Merit Council, 174 Social Hall Ave., Salt Lake City 11, Utah.

Health Officer, Washington State—A real opportunity is arising for a district health officer in the Olympic Health District at Port Angeles, Wash. This community is located on the Strait of Juan de Fuca at the foothills of the beautiful Olympic National Park. M.D., M.P.H., plus experience desired. Please contact H. Grant Skinner, M.D., M.P.H., State Department of Health, 1309 Smith Tower, Seattle, Wash.

Public Health Physician (District Health Officer)—State of Wisconsin. Two positions. One position includes 11 counties in north central part of state, headquarters Rhinelander. Second position includes eight counties in area bordering Lake Michigan, north of Milwaukee, headquarters Fond du Lac. Act as medical administrator of district office; district epidemiologist; plan, organize, supervise work of district office personnel consisting of public health engineer, public health nurse, sanitarians, nutritionist, dental hygienist. M.P.H. degree plus three years' experience in public health administration; eligibility for a license in Wisconsin. Salary $11,640–$14,460 per year, plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Public Health Physician (Director, Local Health Service)—Wisconsin State Board of Health, Madison. Under the general direction of the state health officer and his assistant, to interpret the policies of the State Board of Health to the staff of the eight state district health offices; provide consultation, advice, and assistance to members of the district staff on administrative matters, community organization and in the development and evaluation of full-time local health departments. M.P.H. degree, plus three years' experience in public health administration; eligibility for a license to practice medicine in Wisconsin. Salary $11,640–$14,460 per year plus travel allowance. Civil service, vacation, sick leave, Social Security, retirement benefits. Write Carl N. Neupert, M.D., State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Assistant Director of Public Health Department—in Southern California, near desert, mountains, and seashore. Start $909, with increases to $1,105. M.D. and M.P.H. required plus one year rotating hospital internship and two years in a public health department, one of which was in administrative capacity. **Public Health Medical Officer**—$866–$1,052. M.D. required and one year rotating hospital internship. Must have or be eligible for California state license to practice medicine. Paid vacation and sick leave, part-paid health insurance, other benefits. County Personnel, 236 Third St., San Bernardino, Calif.

Executive Director—for Hawaii Cancer Society, Honolulu. Retirement plan, going programs, good climate. Graduate degree in public health or equivalent training in allied fields plus experience as an executive or a major department head in health agency required. Salary open. Apply to Dr. Walter Quisenberry, 1018 Lunalilo St., Honolulu, Hawaii.

Director of Business Management—Wisconsin State Board of Health, Madison. Under general direction of the state health officer and his assistant, direct the activities of the divisions of fiscal services, personnel, and internal services; conduct studies and make recommendations pertaining to business management activities designed to promote efficient operation; represent the Board when requested at public hearings and act as liaison officer to designated state departments. College graduation with a major in the field of law, business administration, hospital administration or public administration, including training in accounting principles and practices; six years of experience in public health administration or equivalent administrative experience in a closely related field, including three years' high level administrative experience in business management. Salary $8,940–$10,860 per year. Civil service, vacation, sick leave, Social Security, retirement benefits. Write E. H. Jorris, M.D., Assistant State Health Officer, 400 State Office Bldg., Madison 2, Wis.

Public Health Nurse—Opening for Public Health Nurse II. B.S. degree plus one year experience in established health department. Salary range $360 per month to $450 per month, plus liberal travel allowance.

Nurses without experience and with degrees and public health training can qualify as Public Health Nurse II after one year of employment. Write to J. H. White, M.D., Director, Weld County Health Department, P. O. Box 521, Greeley, Colo.

Public Health Nurses or Graduate RN's—interested in generalized public health nursing program in rural area. Very liberal personnel policies. Eight cents per mile travel allowance. Salaries based on qualifications and experience. Will consider nurse with children. Write Director, Northeast Colorado Health Department, 700 Columbine, Sterling, Colo.

Public Health Nurses (salaries $335–$455) and **Graduate Nurses** ($275–$395)—for generalized public health nursing in New Mexico Department of Public Health. Opportunities for advancement, retirement plan, and other fringe benefits. Write Merit System Supervisor, Box 939, Santa Fe, N. M.

Public Health Nurses—Beginning salary $4,440. **Graduate Nurses**—Beginning salary $4,020. Five-day work week from 8:30 a.m. to 4:30 p.m. Four weeks' vacation, 11 holidays, 12 days' sick leave annually. Pension plan. Generalized public health nursing agency founded by Lillian D. Wald. Ongoing inservice education program. Four universities offer opportunities for study at all levels. Some scholarship assistance available. For information, write or call Personnel Office, Visiting Nurse Service of New York, 107 East 70th St., New York 21, N. Y. Telephone Lehigh 5–1100.

Public Health Nurse Supervisor—Excellent opportunity. Liberal personnel policies. Salary range $4,600–$5,980. Generalized program including rehabilitation, industry, nursery schools, parents' classes, crippled children's clinics. Highly industrialized and agricultural community in southeast central Pennsylvania, 50 miles from Baltimore, 90 miles from Philadelphia and Washington. Write Director, V.N.A., 218 E. Market St., York, Pa.

Supervisor of Nurses—for county-district public health department of 43,000 population. Primarily rural community—farming and logging. Well established department; excellent quarters; staff of six nurses, and growing. Good working relationship, staff and community. Forty-hour, five-day week; 11 paid holidays; 12 working days' vacation. Beginning salary $5,160. Contact R. Sherwin Johnston, M.D., Lewis County Health District, Courthouse Annex, Chehalis, Wash.

Public Health Educator II—Initiate and develop school-community health education programs. Desirable qualifications: formal training and experience in public health; sound working knowledge of principles of education and methods of teaching. $5,424–$6,504 per year. Travel allowance, vacation, sick leave, retirement benefits, group insurance plans. Write Dr. Amy L. Hunter, Director, Bureau of Maternal and Child Health, Wisconsin State Board of Health, Madison 2, Wis.

Regional Nutritionist—to carry out a generalized program of consultative services to county health units. Minimum requirements are a bachelor's degree, approved dietetic internship, and two years' experience in public health or a related field. Current salary range is $4,800–$6,000, plus good travel allowance, state retirement, and Social Security. Apply to Marjorie M. Morrison, Florida State Board of Health, P. O. Box 210, Jacksonville 1, Fla.

Sanitarian—to accept responsible position with a growing health department. Excellent chance to gain supervisory and training experience. Minimum experience and training qualifications: Three years of professional experience in the field of public health sanitation; and graduation from a four-year college or university with specialization in engineering, agriculture, chemistry, entomology, bacteriology, zoology, veterinary science or a combination of these fields. (A year of graduate work in the field of public health or sanitary engineering may be substituted for two of the required three years of experience.) Salary range $400–$450 per month plus liberal fringe benefits. Write Martin W. Ericson, Director of Sanitation, Room 103, City Hall, St. Joseph, Mo.

Sanitarian—Salary range $436–$530; starting salary depending on experience and qualifications. Generalized sanitation program. Retirement plan, medical plan, sick leave, and vacation time. Automobile furnished. Must have registration or be eligible for same. Apply Victor H. Hough, M.D., Health Officer, Inyo County Health Department, Independence, Calif.

Health Education Consultant—for New Mexico Department of Public Health. Master of public health or health education and two years' experience. Southern tri-county district. Salary range $425–$575. Write Merit System Supervisor, Box 939, Santa Fe, N. M.

Public Health Statistician—Must have master's degree in public health statistics and two years' experience or an equivalent combination of training and experience. Salary range $460–$575. Starting salary dependent upon training and experience. Write to Personnel Officer, Florida State Board of Health, P. O. Box 210, Jacksonville, Fla.

The Idaho Department of Health offers outstanding opportunities for qualified **Public**

Health Physicians—Four established and operating district health departments need full-time qualified medical directors. Positions are under State Merit System; entrance salaries are $935–$1,090 per month depending on qualifications. Idaho has a lot to offer: a growing program, plenty of fresh air with no smog, good year-round climate, easy access to best fishing and hunting in the West. Address inquiries to Dr. Terrell O. Carver, Administrator of Health, State House, Boise, Idaho.

Child Psychiatrist—interested in academic career with opportunity to conduct a mental hygiene clinic for preschool children. Academic title and research opportunity with excellent salary. Three years' accredited residency in psychiatry, and at least two years' post-residence experience with one year minimum in child psychiatry. Apply Dr. S. Mouchly Small, School of Medicine, University of Buffalo, Buffalo 14, N. Y.

Physician to Do Research—Study toxicology of beryllium and collect and evaluate epidemiological and statistical data and prepare scientific papers. Position created under terms of two-year grant from the National Institute of Health. **Physician to Do Research;** undertake studies on the long-term effects of radiation in human beings, and collect and evaluate data listed above. For further information write Mr. Andrew L. McCabe, Personnel Director, Pennsylvania State Department of Health, P. O. Box 90, Harrisburg, Pa.

Openings with the City and County of Denver for the following:

Dietitian I—$3,672–$4,596

Assistant Maternal and Child Health Director—$9,012–$11,256

Public Health Educator I—$5,256–$6,600

Public Health Educator II—$5,748–$7,212

Public Health Nurse Consultant—$4,596–$5,748

Write Career Service Authority, Room 178, City and County Bldg., Denver, Colo.

Public Health Educator II—(Salary range $5,529–$7,055). One to act as consultant in a specialized program at the state level, and another to assist regional consultant in a large metropolitan area. Requirements: College graduation with major course work in the natural sciences, social sciences, or a master's degree in public health education and two years' experience in a responsible position in the field of public health education in a community organization, including one year with a voluntary or official public health agency. For application write Mr. Andrew L. McCabe, Personnel Director, Pennsylvania State Department of Health, P. O. Box 90, Harrisburg, Pa. Final date of filing for examination is September 6, 1958.

Associate Director (M.D.)—for leading biological manufacturer, blood bank, blood typing serums. Experienced laboratory background. Excellent salary, permanent, no traveling. Knickerbocker Biologicals, Inc., Times Square, New York 36, N. Y.

Public Health Nurse—$4,740–$5,772. Opportunity to enjoy work in the Lake Tahoe-Squaw Valley Winter Olympic area. Generalized program in official agency. Three weeks' vacation, retirement, health insurance and sick leave benefits. Applicant must be eligible for California registration; public health nursing preparation required. Write Richard F. White, M.D., Director of Public Health, 360 Elm St., Auburn, Calif.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

Physician—Age 30, M.S., M.D., M.P.H. Three years of graduate training in physiology. Desires position with public health organization, university, or industry. Available January, 1959. A. William Menzin, M.D., 8, Ave. Pictet de Rochemont, Geneva, Switzerland.

Public Health Dentist—with graduate studies, including M.P.H. degree, experience in general hospital, and wide practical experience in public health. Seeks opportunity with progressive program or in research. **Box D-19,** Employment Service, APHA.

Microbiologist-Immunologist—D.Sc. (microbiology) with wide background in medical sciences, bacteriology, parasitology, public health. Teaching experience in medical schools and in organizing course work, planning and conducting research. Seeks similar position in medical school, school of public health, or graduate school, or as senior associate in basic research. **Box L-60,** Employment Service, APHA.

Public Health Nurse-Administrator—B.S., M.P.H. Experience on all levels of public health nursing, including associate director of a state division of nursing, and industrial nursing experience. Seeks position in area of moderate climate. Available November 1. **Box M-21,** Employment Service, APHA.

Professional Engineer—M.APHA; M.ASCE; registered; advanced degrees in engineering and public health; experience in public health, engineering, engineering teach-

ing and construction. **Box E-38**, Employment Service, APHA.

Sanitarian—Desires position in food and/or milk division of a health department. B.S. in public health and will receive M.S. in food technology in September, 1958. Performed general sanitarian and laboratory duties during the past two summers. Prefer Northeast but will relocate to desirable position. **Box S-33**, Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Director, county health department established four years ago; resort area near Philadelphia. (b) Regional health officer; town, 30,000; university five miles away; outside the United States. (c) Two public health officers; college town, California. (d) Public health physician to direct over-all program of health services including those of teacher-nurse service, hearing and vision conservation program; would consult with school administrators, teachers, parents, nurses, representatives of official and nonofficial agencies in promotion of health services; minimum five years' experience required; city of several million; Midwest. (e) Health educator to serve as consultant for generalized program with each of 54 communities throughout state. (f) Statistician qualified to share responsibility with director and assistant director for organization and continued operation of important study; university school of public health; faculty appointment and opportunity to study toward advanced degree. (g) Industrial hygienist; preferably with B.S. degree, chemistry major; one year graduate study in industrial hygiene with basic training in epidemiology and biostatistics, industrial health, environmental physiology and industrial toxicology; three to five years' experience preferably in petrochemical industry. (h) Sanitarian; degree in sanitary science, public health or engineering, three years' experience required; foreign operations, major industrial company; $10,000–$12,000. PROFESSIONAL NURSES FOR FOLLOWING: (i) Director nursing education; master's or doctor's degree in nursing education; public health nursing experience and health education specialty desirable; new school of nursing, state university; salary up to $10,000; Midwest. (j) Instructor in public health nursing; program fully approved; 300-bed cooperating hospital; East. (k) Generalized consultant, state health department of nursing; minimum, $6,500; West. (l) School nurse; town of 150,000 near Chicago; $4,200 to $7,200.

OPPORTUNITIES WANTED

(a) Public health and medical administrator; has had distinguished career; currently in charge of important study project which will be completed soon. (b) Health educator; B.S., M.S., M.P.H.; three years, chief bacteriologist, state department of health; three years, health educator, county health and tuberculosis association.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

THE BACTERIOLOGY OF TUBERCULOSIS—By Egons Darzins. Minneapolis, Minn.: University of Minnesota Press, 488 pp. Price, $10.00.

Employing the historical approach to his subject Dr. Darzins states his purpose: "Before further advances in tuberculosis research can be made, it is necessary to summarize the work in the bacteriology of tuberculosis; this is one of the aims of this book. Another is to point out unsolved problems in the bacteriology of tuberculosis and to indicate recently developed experimental methods for the study of tubercle bacilli." The author has had wide experience and has worked in several scientific centers; his broad viewpoint is always evident.

The study of the bacillus is approached from the standpoint of morphology, growth needs, isolation and identification, pathogenicity and types, and animal experimentation. The growth of the bacterium at various concentrations of oxygen, CO_2, fatty acids, glycerol, benzoates and other aliphatic and aromatic organic compounds is described. Various sources of nitrogen, minerals, trace elements, vitamins, hormones, or other substances are discussed. Many observations are made on the effects of different types of tubercle bacilli on mice, guinea pigs, rabbits, hamsters, and incubated eggs. The collection of sputum and other specimens, their concentration, staining, and cultivation on liquid or solid media are extensively reviewed.

A separate chapter is given to the hazards of working with tubercle bacilli, and there is an excellent discussion of the precautions to be taken. A full bibliography supplements the wealth of detail in the text. Any laboratory doing tuberculosis work will find this a valuable reference. EDWARD KUPKA

A PARENTS' GUIDE TO CHILDREN'S ILLNESSES—By John Henderson. New York, N. Y.: Duell, Sloan, and Pearce (124 East 30th St.), 1958. 398 pp. Price, $4.75.

Intended as an aid to parents in understanding the illnesses and accidents of childhood and in recognizing early symptoms of disease this book compresses a tremendous amount of information within a relatively brief compass. It is encyclopedic in approach, somewhat like a popularized version of a medical text. After a preliminary chapter on the nature of childhood illness, each of the next nine chapters is devoted to conditions of individual organ systems. Chapters follow on the common contagious diseases and on poisonings. The final chapters cover the acutely ill child and the principles of nursing care. There is a bibliography of technical medical papers, including such subjects as the surgery of infancy and childhood and the Coxsackie viruses. The book also contains a 34-page glossary of technical terms.

In a book of this sort, which must necessarily oversimplify many complex problems, any professional person reading it would tend to disagree on certain points. For example, the somewhat optimistic prognosis offered in cerebral palsy might encourage some parents to expect too much of their children. On the other hand, the very poor prognosis given in hydrocephalus may be too pessimistic in the light of recent surgical developments.

The introduction of many technical terms in the text tends to present reading difficulties for those lacking a scientific

background. For this reason, "A Parents' Guide to Children's Illnesses" is to be recommended only for use by better educated and more discriminating parents. For others, the discussion of so many serious, and often fatal, diseases might be too overwhelming, even if understood. EDWARD R. SCHLESINGER

USES OF EPIDEMIOLOGY—By J. N. Morris. Baltimore, Md.: Williams and Wilkins, (Mt. Royal and Guilford Aves.), 1957. 131 pp. Price, $4.00.

This is a book that should be useful to all persons interested in medical, dental, and public health practice. The following are the seven related uses of epidemiology which are described and illustrated as means of learning more about health and to aid in public health and medical action: (a) The historical study of population morbidity and mortality to determine past and future trends. Such data are not gathered for purely descriptive purposes but to learn the reasons for the trends. (b) Community "diagnoses" of the presence, nature, and distribution of health and disease to determine the type and extent of local public health and medical problems. (c) "Operational research": group studies to assess the effectiveness of control programs, medical care, hospital facilities, administrative procedures, etc. (d) Estimation of individual chances and risks of illness, accidents, death, etc., is based upon the experience of representative samples of population groups. (e) Aid in completing the clinical picture by studies of both sick and apparently well persons in order to discover all the characteristics of disease processes. (f) Identification of syndromes with similar clinical manifestations by observing their occurrence in populations according to age, sex, occupation, and so forth. (g) Search for causes by studies of agent, host, and environment to determine those factors which produce an effect. This is the most important use of epidemiology in medicine because it leads to prevention.

In addition to specific uses the relationship of clinical, laboratory, and epidemiologic approaches are clearly demonstrated.

This book should serve as a means of crystalizing the thinking of those experienced in epidemiology and in calling the attention of all others to the potential contributions of epidemiology to the successful practice of medicine and public health, and to the need of more epidemiology. E. GURNEY CLARK

PSYCHIATRIC INPATIENT TREATMENT OF CHILDREN—Report of the Conference on Inpatient Psychiatric Treatment for Children held at Washington, D. C., October, 1956, under the auspices of the American Psychiatric Association and the American Academy of Child Psychiatry. Washington, D. C.: American Psychiatric Association, (1785 Massachusetts Ave., N.W.), 1957. 194 pp. Price, $3.50.

Of the estimated 5 per cent of our child population who need psychiatric attention, some tentative studies suggest that perhaps half could benefit from inpatient observation or care. Since interest in the development of such facilities is increasing, a federal grant was made for a cooperative study and for a conference organized jointly by the American Psychiatric Association and the American Academy of Child Psychiatry. Fifty-nine participating individuals, organized in a variety of preparatory committees, formulated working papers and deliberated for a year preceding the conference. Discussion groups sifted the findings and suggestions, reports were made to a plenary session, the proceedings were recorded, and an Editorial Committee prepared the report. The result is a dull book which attempts to do justice to everybody's opinions and leaves the reader bewildered. Any one of a number of participants could have

done a better job with much less trouble and expense by presenting a point of view and a style of work that would be coherent and instructive even when mistaken.

Discrepancies arise when the very purpose of an inpatient facility is envisaged, for the detainment of dangerous delinquents requires quite different arrangements than the care and treatment of schizophrenics. Consequently, much of the discussion is diffuse or contradictory. The effort to include everything is sometimes tedious. We are told, for example, that parents should be involved in treatment if they are available, but we are also warned that "Parents are not available for such reasons as geographic distance, death, desertion, illness, and imprisonment." The closest approximation to agreement is found in the interest in individual psychoanalytic treatment, since "Most of the centers define their psychotherapeutic approach as psychodynamically oriented," an orientation to which "the greatest contributions . . . are those of Freud and psychoanalysis." Other modalities of treatment are given less attention. Pediatricians are not called upon to share single responsibilities for case management, except for strictly medical chores, nor are the teachers, who are regarded as auxiliaries to the psychiatric treatment plan. "The needs of the individual child are explained to the teachers and the principal. . . . Sometimes the educational approach is determined by specific psychiatric direction. . . ."

But these are mainly matters of emphasis. Formulations to suit nearly every taste will be found, since the volume is deliberately intended to avoid singleness of purpose and direction. Much valuable information on architecture and budgeting is included. This is a useful record of contemporary thinking about child psychiatry and can be considered as essential reading nowadays for those seriously interested in planning a children's psychiatric inpatient service. JOSEPH WORTIS

SYMPOSIUM ON NUTRITION AND BEHAVIOR. Proceedings of a Symposium held at the University of Minnesota School of Public Health, Laboratory of Physiological Hygiene, Minneapolis, Minn., April 27, 1956 —By Josef Brozek, et al. New York: National Vitamin Foundation (15 E. 58th St.), 1957. 124 pp. Price, $2.50.

This symposium on "Nutrition and Behavior," an interdisciplinary discussion of the problem, cuts across the growing realization that psychologic research has something to contribute to the science of nutrition and at the same time demonstrates that nutritional studies can help to clarify some of the fundamental problems of human behavior. Members of the symposium are representative of the many disciplines concerned with the subject.

The volume deals with four major areas:

1. Impact of diet on behavior
2. Hunger and appetite
3. Food appraisal and acceptance by man
4. Satiety and weight control

Josef Brozek, Ph.D., the guest editor, introduces the symposium in a scholarly discussion indicating the complex relationships between diet and behavior and the need for interdisciplinary study of the problem, so as to include the skills of the dietitian, biochemist, physiologist, psychologist, pathologist, internist, neurologist, and the psychiatrist. While pooling information and methods of physiologic behavioral sciences, this symposium does not attempt to cover the whole field.

Robert B. MacLeod, Department of Psychology, Cornell University, in introducing the section devoted to the "Impact of Diet on Behavior," pointed out that in our search for an understanding of the dynamics of behavior we can find no better examples than in

the behavior of organisms directed toward food. Four papers in this section discuss how human efficiency is related to diet. These are:

1. Psychologic Effects of Thiamine Restriction and Deprivation in Normal Young Men. Josef Brozek, Ph.D.
2. Effect of B-Complex Vitamins on Conditional Reflexes in Dogs. W. Horley Gantt, M.D.
3. Pantothenic Acid Deprivation and Thermal Behavior of the Rat. Bernard Weiss, Ph.D.
4. Physical Performance Capacity and Nutriture: Evaluation of Rations by Animal Experimentation. D. R. Young, Ph.D., and Harry Spector, Ph.D.

The section "Hunger and Appetite" is introduced by Curt P. Richter, Ph.D., of Johns Hopkins University Hospital, who calls attention to different points of view in the relation of hunger and appetite. Four papers that show light on the subject are:

1. Taste Mechanisms in Preference Behavior. Carl Pfaffman, Ph.D., Brown University
2. The Regulation of Food Intake. Some Experiments Relating Behavioral, Metabolic, and Morphologic Aspects. James Anliker, Ph.D.
3. Physiologic Factors Regulating the Feeding Process. Paul Thomas Young, Ph.D., University of Illinois
4. The Repetitive Element in the Diet. Paul Siegal, Ph.D., University of Alabama.

The third section of the symposium deals with "Food Appraisal and Acceptance by Man." This section is introduced by W. Franklin Dove, Ph.D., of the University of Illinois. This group was concerned with the extension of the foregoing basic principles as they bear upon food appraisal and acceptance by man. Four papers that helped focus attention on this problem are:

1. Cultural Factors in Dietary Choice. Dorothy Lee, Ph.D., Merrill-Palmer School
2. The Components of Food Acceptance and Their Measurement. Francis J. Pilgrim, Ph.D., Quartermaster Food and Container Institute
3. Psychologic and Sociologic Aspects of Survival Ration Acceptability. E. Paul Torrance, Ph.D., and Ralph Mason, Air Force Personnel and Training Research Center
4. Some Problems of Feeding Mental Patients. Hayden H. Donahue, M.D., and Phoeba Fowler

The final session turned its attention to "Satiety and Weight Control." Jean Mayer, Ph.D., D.Sc., Harvard University, introduced the topic emphasizing the "crucial relevance of the concept of satiety to the problem of over weight." Dr. Mayer states that "the crucial aspects in controlling intake in our present culture is not the initiation of feeding behavior, but its cessation." The following papers contributed an outstanding climax to a technical but basic understanding of "Nutrition and Behavior."

1. Psychologic Factors in Weight Control. Charlotte Young, Ph.D.; Kathleen Berreford; and Norman S. Moore, M.D., Cornell University
2. The Emotional Significance of the "Preferred Weight." Hilda Bruch, M.D., College of Physicians, Columbia University
3. The Personality of Obese Women. Robert F. Suczek, Ph.D., Merrick Memorial Hospital, Berkeley, Calif.
4. Studies on the Physiology of Hunger. II. The Effect of the Intravenous Administration of Various Nutrients of the Gastric Hunger Contractions of Man with Severe Brain Damage. Albert Stunkard, M.D., Cornell University, Medical School

An epilogue by Josef Brozek brings this publication to a close with a brief survey of current trends and selected recent publications as a supplement to the symposium.

This publication is highly recommended for an outstanding contribution to an understanding of nutrition and behavior. It is especially recommended to those in the field of public health nutrition. MARIETTA EICHELBERGER

ATOMIC ENERGY IN MEDICINE—By K. E. Halnan. New York, N. Y.: Philosophical Library (15 East 40th St.), 1958. 157 pp. Price, $6.00.

This 150-page book attempts to cover the field of atomic medicine for those not necessarily having specialized knowl-

edge of either physics or medicine. This makes it attractive as a short introductory volume for the rank and file public health worker.

Public health workers are increasingly involved in this field and a background knowledge of atomic medicine is today a must for the health officer, the sanitary engineer, the health educator, and the public health nurse. The first two chapters devoted to radiation physics are followed by five chapters on the use of radioactive isotopes in diagnosis, treatment, and research. One chapter deals with high-energy particle accelerators, cyclotrons, betatrons, synchrotrons, and linear accelerators.

Another chapter deals with the hazards of radiation. On page 138, Table XI fell victim to printer's mistakes. The absence of several decimal points has ruined an instructive demonstration of the influence of distance on the amount of radiation exposure.

The reader may occasionally get lost in some of the technical discussion, but if he will follow the author's suggestions for further reading he will certainly learn to understand most of the material presented in this book. JAN LIEBEN

A SEARCH FOR MAN'S SANITY. The Selected Letters of Trigant Burrow with Biographical Notes. Prepared by the Editorial Committee of the Lifwyun Foundation—William E. Galt, Chairman. Foreword by Sir Herbert Read. New York, N. Y.: Oxford University Press, 1958. 615 pp. Price, $8.75.

Among the men who brought psychoanalysis to the United States, few are as interesting and certainly none were as controversial as Trigant Burrow. Diverging quite early in his career from the orthodox analytic stream, he introduced the group method of analysis which eventually involved a break with many of his colleagues. Burrow saw disorders of behavior as essentially social or interrelational. Eventually his interest turned to the internal physiological changes accompanying external behavior for the purpose of attaining a better understanding of behavioral disorders.

His interests and views were presented in publications which for many were obscure and difficult to comprehend. It is interesting, therefore, in this volume of letters to see how naturally and how clearly he communicates. Throughout his life Dr. Burrow maintained a prodigious correspondence with literally scores of people. Included in this volume are letters to Sigmund Freud, Carl Jung, Adolf Meyer, Havelock Ellis, Walter B. Cannon, as well as to such literary figures as D. H. Lawrence, H. L. Mencken, Sherwood Anderson, and many others. Taken as a whole these letters provide a revealing portrait of an original and stimulating mind. Few readers of this volume will leave it without being affected in some way. One can recommend this book without reservation.

GEORGE ROSEN

HEALTH AND MEDICAL CARE IN NEW YORK CITY. A Report by the Committee for the Special Research Project in the Health Insurance Plan of Greater New York. Cambridge, Mass.: Published for the Commonwealth Fund by Harvard University Press, 1957. 282 pp. Price, $7.50.

The Health Insurance Plan of Greater New York (HIP) was launched in 1947 with three basic objectives: to demonstrate the claimed advantages of the group practice—prepayment method—to give special emphasis to preventive service, and to provide continuing analysis of the experienced gained. This volume represents the most ambitious and imaginative of the steady stream of HIP research publications which have served as progress reports on the first two objectives and as evidence of adherence to the third.

An expert study committee, with a small but prodigiously productive staff,

undertook to compile comparative data on health, medical care, and population characteristics through interview surveys of over 3,000 HIP-member households and some 4,000 matched New York City household controls. The resulting data comprise a feast of information concerning the pattern of illness in a metropolitan area, the degree to which overt health needs are met, the nature of the services obtained, and—most intriguingly—the impact on all this of a group medical care program.

The survey inevitably raises more questions than it answers. It suggests, for example, that patterns of medical care reflect the influence of educational level, social mores, and occupation as much, or more, than that of income status or health plan "coverage." The basic weakness of the study—that of mounting the entire compendium of statistics and surmises upon the shaky foundation of single interviews with one household member—is fully appreciated by the authors and as valiantly buttressed as possible. It is to the credit of of the HIP-sponsored study committee that careful objectivity is maintained in the interpretation of even the most tempting of tabulations.

The book is a reference shelf requirement for the public health worker, medical care planner, and sociologist, whether or not at work in the New York area.

Do the data demonstrate the health values of the HIP approach? The reader will be impressed with the case for the affirmative—yet surprised at the relatively small margin of difference between certain of the HIP experiences and those of the general New York City sample. E. R. WEINERMAN

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ANIMAL DISEASE AND HUMAN HEALTH—Annals of the New York Academy of Sciences, Vol. 70, Art. 3. James Lieberman, et al. New York: New York Academy of Sciences, 1958. pp. 277–762. Price, $5.00.

ANTISERA, TOXOIDS, VACCINES AND TUBERCULINS IN PROPHYLAXIS AND TREATMENT. H. J. Parish (4th ed.). Baltimore, Md.: Williams & Wilkins, 1958. 256 pp. Price, $7.00.

ASSESSMENT OF SOCIAL CASE RECORDING, AN. An Experimental Study in Two Family Agencies. John Frings; Ruth Kratovil; and Bernice Polemis. New York: Family Service Association of America, 1958. 151 pp. Price, $4.00.

ATLAS OF AIRBORNE POLLEN GRAINS, AN. H. A. Hyde and K. F. Adams. New York: St. Martin's Press, 1958. 112 pp. Price, $10.00.

AVAILABILITY FOR WORK: CHRONIC DISEASE AND LIMITATION OF ACTIVITY. Part I—Measurement of Availability for Work in Relation to Health and Other Factors. Part II—Illness and Limitation of Activity Among Older People. Philip S. Lawrence. Washington, D. C.: Gov. Ptg. Office, 1958. 46 pp. Price, $.35.

BIOLOGICAL TREATMENT OF SEWAGE AND INDUSTRIAL WASTES. Vol. 2—Anaerobic Digestion and Solids—Liquid Separation. Edited by Brother Joseph McCabe and W. W. Eckenfelder, Jr. New York: Reinhold, 1958. 330 pp. Price, $11.50.

CLINICAL PHYSIOLOGY AND PHYSICAL FITNESS AND REHABILITATION, THE. Ernest Jokl. Springfield, Ill.: Thomas, 1958. 194 pp. Price, $8.50.

CLINICAL STUDIES IN CULTURE CONFLICT. Edited by Georgene Seward. New York: Ronald Press, 1958. 598 pp. Price, $7.00.

CONCEPTS AND METHODS OF SOCIAL WORK. Edited by Walter A. Friedlander. New

York: Prentice-Hall, 1958. 308 pp. Price, $4.50.

CRIME AND INSANITY. Edited by Richard W. Nice. New York: Philosophical Library, 1958. 280 pp. Price, $6.00.

DEMOGRAPHIC YEARBOOK 1957. United Nations. New York: Columbia University Press, 1958. 656 pp. Price, $8.00 cloth; $6.50 paper.

EFFECTS OF SOCIAL AND CULTURAL SYSTEMS IN REACTIONS TO STRESS. William Caudill. New York: Social Science Research Council, 1958. 34 pp. Price, $.50.

GESTATION. TRANSACTIONS OF THE FOURTH CONFERENCE, MARCH 5–7, 1957. Claude A. Villee, Editor. New York: Josiah Macy, Jr. Foundation, 1958. 216 pp. Price, $4.50.

HEALTH YEARBOOK 1957. Oliver E. Byrd, Ed.D., M.D. Stanford, Calif.: Stanford University Press, 1958. 278 pp. Price, $5.50.

INDUSTRIAL HYGIENE AND TOXICOLOGY IN THREE VOLUMES. Volume I—General Principles. Frank A. Petty, Editor (second rev. ed.). New York: Interscience Publishers, 1958. 830 pp. Price, $17.50.

INDUSTRIAL NOISE MANUAL. Detroit, Mich.: American Industrial Hygiene Assn., 1958. 10 chapters, plus. Price, $7.50.

MANUAL OF ANALYTICAL METHODS. Recommended for Sampling and Analysis of Atmospheric Contaminants. Cincinnati, Ohio: American Conference of Governmental Industrial Hygienists, 1958. Price, $5.00 which includes present collection and next nine methods which receive Committee approval.

MUNICIPAL YEAR BOOK 1958, THE. Orin F. Nolting and Davis S. Arnold, editors. Chicago, Ill.: International City Managers' Association, 1958. 598 pp. Price, $10.00.

9-MONTHS' WONDER, THE. Peg Bracken and Helen Berry Moore. Englewood Cliffs, N. J.: Prentice-Hall, 1958. 90 pp. Price, $2.95.

OVERCOME ARTHRITIS. William Kitay. Englewood Cliffs, N. J.: Prentice-Hall, 1957. 256 pp. Price, $4.95.

PASTEUR FERMENTATION CENTENNIAL 1857–1957, THE. A Scientific Symposium. New York: Chas. Pfizer, 1958. 207 pp.

PERSONAL, IMPERSONAL, AND INTERPERSONAL RELATIONS. A Guide for Nurses. Genevieve Burton. New York: Springer, 1958. 230 pp. Price, $2.75.

PESTICIDE HANDBOOK. Donald E. H. Frear (10th anniversary ed.). State College, Pa.: Pesticide Handbook, 1958. 219 pp. Price, $1.50 paper; $3.00 cloth.

PHYSICAL EDUCATION FOR ELEMENTARY SCHOOLS. Ruth Evans, et al. New York: McGraw-Hill, 1958. 317 pp. Price, $5.50.

PSYCHIATRIC HOSPITAL AS A SMALL SOCIETY, THE. William Caudill. Cambridge, Mass.: Harvard University Press, 1958. 406 pp. Price, $6.50.

PUBLIC EXPOSURE TO IONIZING RADIATIONS. What Public Health Personnel Needs to Know. New York: American Public Health Association, 1958. 64 pp. Price, $1.35.

REHABILITATION—A COMMUNITY CHALLENGE. W. Scott Allan. New York: Wiley, 1958. 247 pp. Price, $5.75.

RELAX YOUR WAY TO HEALTH. M. H. Soglow. Englewood Cliffs, N. J.: Prentice-Hall, 1958. 208 pp. Price, $4.95.

SAFETY AND HEALTH IN DOCK WORK. Washington, D. C.: International Labor Office, 1958. 125 pp. Price, $1.00.

SAMPLING OPINIONS—AN ANALYSIS OF SURVEY PROCEDURE. Frederick F. Stephan and Philip J. McCarthy. New York: Wiley, 1958. 451 pp. Price, $12.00.

SCHOOL HEALTH PROGRAM. Jessie Helen Haag. New York: Henry Holt, College Dept., 1958. 533 pp. Price, $6.50.

SCHOOL HEALTH SERVICES—A SELECTIVE REVIEW OF EVALUATIVE STUDIES. Bronson Price. Washington, D. C.: U. S. Gov. Ptg. Office, 1957. 149 pp. Price, $.45.

SHORT HISTORY OF ANATOMY AND PHYSIOLOGY FROM THE GREEKS TO HARVEY, A. Charles Singer. New York: Dover Publications, 1958. 209 pp. Price, $1.75.

SIGNS, SYMPTOMS AND TREATMENT OF CERTAIN ACUTE INTOXICATIONS. Wm. B. Deichmann and Horace W. Gerarde (2nd ed.). Springfield, Ill.: Thomas, 1958. Price, $3.75.

SOCIAL STATUS AND PUBLIC HEALTH. Ozzie G. Simmons. Pamphlet 13. New York: Social Science Research Council, 1958. 34 pp. Price, $.50.

SOLDIER IN WHITE. The Life of General George Miller Sternberg. John M. Gibson. Durham, N. C.: Duke University Press, 1958. 277 pp. Price, $6.75.

VARIABLES RELATED TO HUMAN BREAST CANCER. W. Elving Anderson; Harold O. Goodman; and Sheldon C. Reed. Minneapolis, Minn.: University of Minnesota Press, 1958. 172 pp. Price, $4.00.

WILL TO LIVE, THE. Arnold A. Hutschnecker (new rev. ed.). Englewood Cliffs, N. J. Prentice-Hall, 1958. 292 pp. Price, $4.95.

YEARBOOK OF MODERN NURSING 1957–1958, THE. A Source Book of Nursing. M. Cordelia Cowan, Editor. New York: Putnam's, 1958. 460 pp. Price, $9.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Raymond S. Patterson, Ph.D., F.A.P.H.A.

Mental Disorders—In 1956 there was a decrease in numbers of patients resident in state and county mental hospitals, reflecting presumably improvements in treatment of mental disorders. But numbers of first admissions, reflecting the incidence of new cases (or increased facilities) have continued to rise.

ANON. The Changing Outlook in Mental Disorders. Statist. Bull. Metrop. Life Insur. Co. 39, 5:4 (May), 1958.

Good News About Teeth—Though it has long since been shown, via the classic Newburgh-Kingston demonstration, that children who have from birth enjoyed the benefits of fluoridated drinking water will have less caries than those condemned to the use of fluorine deficient water, this latest of reports indicates that older children too, with only ten years exposure to the fluoridated water are also helped materially.

AST, D. B., et al. Newburgh-Kingston Caries Fluorine Study XV. New York J. Dentist. 28, 5:173 (May), 1958.

Perinatal Mortality—Three excellent papers on fetal loss and neonatal mortality—in New York City, across the nation, and throughout the world—will scarcely have been left unread by the MCH'ers among our readers, but the challenging presentations deserve wider attention for much of the distressing wastage of human life is preventable by means already at hand, or obtaintable. Mostly the problem is a matter of community acceptance of social responsibility.

BAUMGARTNER, L., et al. Challenge of Fetal Loss, Prematurity and Infant Mortality—Assessing the Local Situation (and two related papers). J.A.M.A. 167, 8:936 (June), 1958.

Memo for Travelers—"Today, 100 years after the death of John Snow, the student of public health can still visit many of the places associated with his career . . . below the Inn-sign which bears his portrait, a tablet on the wall draws attention . . . to a red granite stone on the kerbside (which) marks the site of the Broad Street pump."

CHAVE, S. P. W. John Snow: The Broad Street Pump and After. M. Officer 99, 24:347 (June 13), 1958.

Perspective—The former director-general of WHO told the assembled sanitarians some broad truths about themselves and their jobs, a story that should have been told to every man (and woman) among us. Though the temptation is great to fill this entire bibliography with quotable excerpts, only one grim reminder is allowable: "The human race is going to survive or nobody is going to survive." Please hunt out this brilliant essay.

CHISHOLM, M. B. Responsibility to Health. Sanitarian 20, 6:280 (May–June), 1958.

More About Resuscitation—A panel recommends that, for emergency resuscitation of infants and small children, mouth-to-mouth inflation—following preliminary clearing of the airway—be used and that working directions for the procedure be included in any revised edition of the (ARC) first-aid manual. The method is described in useful detail here.

DILL, D. B., et al. Symposium on Mouth-to-Mouth Resuscitation. (Expired Air Inflation)

(and two related papers). J.A.M.A. 167, 3:317 (May 17), 1958.

Rumor Stopper—As a counter to any unfortunate gossip about the possibility of brain damage by poliomyelitis vaccination this reassuring finding may be quoted: encephalograms of a large number of normal subjects and those with pre-existing brain damage revealed no abnormalities induced by protection with commercial vaccines. They may safely be given to persons with, as well as without, existing cerebral conditions.

GIBBS, E. L., and GIBBS, F. A. Electroencephalographic Study of Persons Before and After Poliomyelitis Vaccination. J.A.M.A. 167, 8:929 (June 21), 1958.

Sociologic Note—This may seem pretty far out on the perimeter of our concept of public health, but a study of the individuals among a large group of unmarried mothers and fathers (in Great Britain) may still be of interest to those of us who deal, for other reasons, with fallible human beings. Editorially this comment is made on the findings: there is nothing pathologic about unmarried parenthood in the sense that such parents are neurotic or otherwise definable as an unstable, maladjusted or a sick group.

GREENLAND, C. Unmarried Parenthood (two parts). M. Officer 99, 19 and 20:265 (May 9 and 16), 1958.

Lest We Forget—An incubating imported case of smallpox gave rise to a small but exciting outbreak of smallpox in a British town. Before mass vaccination and galling isolation could bring the epidemic under control, two unvaccinated people died, and four victims who had previously been vaccinated came down with the disease but survived.

HOGBEN, G. H., et al. Smallpox in Tottenham—1957. Lancet 7029, 1061 (May 17), 1958.

Efficient Listening—This does not apply to you, of course, but it says here that the average adult can improve his (her?) listening by 25 per cent. A full dozen technics (that can be self-cultivated) for achieving this greatly to be desired end are hopefully listed.

MATTIS, N. W. Are You Listening? Am. J. Nursing 58, 6:827 (June), 1958.

BCG Weighed—Though the following is only one of several findings it seems to be one that may interest many of us who are not intimately concerned with tuberculosis control: "The resistance attributed to (apparently healthy tuberculin) reactors, although never regarded as absolute, no longer seems impressive . . . (for) the incidence of disease among reactors has always been substantial and it seemed low and of little consequence only in situations in which a large number of cases were arising as a result of new infections." The quotation is meant to stimulate you to look up the paper which is mostly about BCG. It concludes that in most situations in our country the advantages of such vaccination are outweighed by its disadvantages.

PALMER, C. E., et al. Community Trials of BCG Vaccination. Am. Rev. Tuberc. 77, 6:877 (June), 1958.

Active Oldsters—"One of the significant findings in the study was the apparent protection (against coronary heart disease) afforded (to ex-athletes) by the continuance of heavy exercise." Even moderate exercise helped too. Incidentally, there were more heavy smokers than nonsmokers in the coronary group, but alcohol seemed to be of little significance.

POMEROY, W. C., and WHITE, P. D. Coronary Heart Disease in Former Football Players. J.A.M.A. 167, 6:711 (June 7), 1958.

Seasonal Reminder—Summer diarrhea in very small children is not a disease entity but is a consequence of infection with a large variety of enteropathogenic viruses (including ECHO,

Coxsackie and adenoviruses) and bacteria (including Shigella and Salmonella).

Ramos-Alvarez, M., and Sabin, A. B. Enteropathogenic Viruses and Bacteria. J.A.M.A. 167, 2:147 (May 10), 1958.

How Many Polio Shots?—Three. There are not sufficient epidemiologic reasons for giving a fourth injection, though six would do no harm, if a vaccine of adequate antigenic potency has been employed. On second thought maybe you had better ignore this sentence and read the entire article.

Salk, J. E. How Many Injections of Poliomyelitis Vaccine for Effective and Durable Immunity? J.A.M.A. 167, 1:1 (May 5), 1958.

Healthy Eating—Most human disease is now chemical rather than of viral or bacterial in origin. Nutritional disorders still bring tremendous social burdens or stark tragedies. Striking examples are reported to underscore the importance of adequate preventive services.

Spies, T. D. Some Recent Advances in Nutrition. J.A.M.A. 167, 6:675 (June 7), 1958.

Virologic Puzzlers—To add to the diagnostic and serologic confusion about variant influenza strains, some experience is reported (from New York City) which suggests that older strains may become altered, or re-emerge, or somehow learn to combine the antigens of earlier strains with those currently causing epidemics against which people have no residual immunity.

Widelock, D., et al. Laboratory Analysis of 1957–1958. Influenza Outbreak (A/Japan) in New York City. J.A.M.A. 167, 5:541 (May 31), 1958.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.
Am. Rev. Tuberc. (American Review of Tuberculosis), National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.
Lancet, 7 Adam St., Adelphi, London, W.C. 2, England.
M. Officer (Medical Officer) Chronicle House, 72–78 Fleet St., London, E.C. 4, England.
New York J. Dentist. (New York Journal of Dentistry), 654 Madison Ave., New York 21, N. Y.
Sanitarian (National Association of Sanitarians), 1256 West 7th St., Los Angeles 14, Calif.
Statist. Bull. Metrop. Life Insur. Co. (Statistical Bulletin Metropolitan Life Insurance Company), One Madison Avenue, New York 10, N. Y.

NEWS FROM THE FIELD

WHO News

World Health Assembly Decisions

The 11th World Health Assembly met in Minneapolis from May 28 to June 13. It adopted a 1959 regular budget of $14,287,600. In addition about six million dollars of UN technical assistance funds will be available for its work and nearly nine million dollars have been contributed by member governments to the malaria eradication program, as well as UNICEF allocation of material supplies. The 1959 program includes nearly 800 projects that cover practically every country and territory in the world.

Among the items that will receive special attention in 1959 are a study of sports medicine, a stepped up malaria eradication program, development of a global smallpox eradication program, greater emphasis on health research, and a comprehensive program to deal with the health aspects of the peaceful uses of atomic energy. With respect to the last mentioned, a proposal was unanimously adopted to aid underdeveloped countries in the use of radioactive isotopes in medicine and to study the effect of radiation on human heredity and on health in general, and to cooperate with the International Atomic Energy Commission, particularly to avoid overlapping and duplication.

For the smallpox eradication program the USSR is donating to WHO 25 million and Cuba two million doses of smallpox vaccine. For the research program the United States has made a contribution of $300,000 in addition to its contributions to the regular budget and the malaria eradication program.

The Assembly voted in future to approve the annual budget by a two-thirds majority instead of the simple majority heretofore required. Brazil, France, Guatemala, Iran, USSR, and Viet Nam were elected to designate representatives to the 18-man Executive Board.

Since 1948 WHO has grown from a membership of 26 to 88 countries. The budget has increased from five to more than 14 million dollars. During 1957, the collection of allocations from active member countries reached 97 per cent, the highest in WHO's decade of existence.

One day of the sessions was devoted to a visit of the Mayo Clinic and Mayo Foundation for Medical Education and Research in Rochester. Following the Assembly, many of the delegates and others who attended took part in one or more of the six post-Assembly technical tours sponsored by the National Citizens Committee for WHO. Three of these from Chicago to San Francisco and three from Chicago to New York gave delegates an opportunity for two weeks to see some of the outstanding health, civic, and industrial facilities of the country. The Tennessee Valley Authority; the Taft Engineering Center; the Public Health Service; numerous health and medical installations in such cities as Chicago, New York, Philadelphia, and San Francisco; state, city, and county health departments; schools of public health; a health museum; industrial establishments, a Navajo Indian Reservation; Puerto Rico; and scenery were on the program.

Executive Board Meets

WHO's Executive Board held its 22nd session immediately following the 11th World Health Assembly in Minneapolis. It elected as chairman Percy E. Moore, M.D., director, Indian and Northern Health Services, Canadian Department of Health, to succeed the retiring chair-

man, Sir John Charles, chief medical officer, Ministry of Health, London. H. Van Zile Hyde, M.D., chief of the Division of International Health, Public Health Service, is the United States representative on the 18-member board.

At this meeting Dr. A. L. Mudaliar of India was nominated general chairman of the technical discussions for the 1959 World Health Assembly, which will be on the subject of "Health Education of the Public." This session begins in Geneva on May 12, 1959. "The role of immunization in communicable disease control" was selected as the topic for the 13th World Health Assembly in 1960.

A consultative committee of the Board made up of five members and two alternates was created to advise the director-general in his negotiations with the International Atomic Energy Commission, a new specialized United Nations Organization. Dr. Van Zile Hyde is a member of this committee.

Approval and authorization for publication were given to reports of five Expert Committees as follows:

Medical Rehabilitation (1st report)

Training of Health Personnel in Health Education of the Public (2nd report)

Environmental Sanitation—Air Pollution (5th report)

Insecticides (8th report)

Professional and Technical Education of Medical and Auxiliary Personnel (4th and 5th reports)

Postgraduate training in the public health aspects of nuclear energy.

The introduction of radiation medicine into the undergraduate medical curriculum.

Each of these reports may be expected to be available within the coming months.

Also noted were reports of five study groups, respectively, on epidemiology, schizophrenia, ataraxic and hallucinogenic drugs in psychiatry, mental health aspects of peaceful uses of atomic energy, and preventive aspects in the teaching of physiology.

Cholera in the News

At the request of the Thailand government WHO has sent 500,000 cc of cholera vaccine to that country. An epidemic has already cost 300 lives and more than 2,000 cases have been reported in Bangkok and 17 provinces. The last previously reported case in Thailand occurred in 1951; in 1949 there had been nine cases.

In India and East Pakistan cases of cholera are running at twice last year's rate—17,600 as against 8,400 in 1947 and 8,900 against 4,000, respectively.

Health and Nuclear Technology

The Atomic Energy Commission has granted $30,000 to the University of Pittsburgh for equipment and instruments to be used in the teaching of nuclear technology as applied to the life sciences. This AEC award adds support to an expanded program of training in radiation health which was recently established within the Department of Occupational Health, Graduate School of Public Health, by a 10-year grant from the Rockefeller Foundation.

Niel Wald, M.D., associate research professor of radiation health, heads the radiation health program faculty. He will be assisted by a group including Herman Cember, Albert A. Spritzer, M.D., and Joseph A. Watson. Professor Cember has developed the courses in health physics offered by the Department of Occupational Health; Dr. Spritzer is trained in internal medicine and occupational medicine; Mr. Watson in biology and isotope tracer technics.

This group is also responsible for the radiation health programs at the Carnegie Institute of Technology, as well as in certain industrial establishments and hospitals in the community. The members are actively engaged in radiobiological programs supported by AEC, and maintain close contact with the latest

developments in the field as consultants to the National Research Council, Union Carbide Nuclear Company, Oak Ridge National Laboratory, Westinghouse's Bettis Atomic Power Division, Carnegie Institute of Technology, and the Mellon Institute.

The new program is designed chiefly for physicians and engineers who may obtain further information from the Secretary, Graduate School of Public Health, University of Pittsburgh, Pittsburgh 13, Pa.

Labor Looks at Its Health Plans

The first National Conference on Labor Health Services was called by the American Labor Health Association in Washington, June 16–17. Attended by about 500 persons, the conference represented labor's first attempt to review the history of labor union health services and to chart their possible directions for the future. The benchmarks from which the meeting and its speakers took off were the 20th anniversary of the National Health Conference of 1938, the 10-year history of the medical services of the United Mine Workers Welfare and Retirement Fund, and the one-year history of the American Labor Health Association.

Chairman of the conference was Morris Brand, M.D., president of ALHA. He outlined the purpose as determination of the medical care and health needs of American workers and their families, problems encountered in the development of prepaid direct service medical programs, and measures to overcome activities designed to prevent labor from achieving its health goals.

The address of welcome was made by Josephine Roche, director and trustee of the UMWA Welfare and Retirement Fund. The opening keynote speaker was Basil O'Connor, president of the National Foundation for Infantile Paralysis. He stressed particularly the importance of the rehabilitation effort in medical care or "making saved life worth living." A medical problem is always more than that; it is a social problem as well. In this connection, he asked, "What has labor done to encourage the wider acceptance professionally and publicly of essential new concepts of medical care?" Another charge was to promote to the utmost ability the recruitment and training of the additional personnel which good medical care demands. His final plea was for research in disease and accident prevention and in technics of treatment and rehabilitation. Here again he challenged labor as to what it is doing "to turn the eyes of youth toward this quest of new knowledge, to draw young minds and young hands to the side of those who have achieved the great goals of yesterday so that they can go on adding to them tomorrow."

The remainder of the meeting was divided into five sessions, one each on "Medical Care for the American Worker and His Family: The Objectives," "Methods of Assuring the Quality of Medical Care," "Community Health Services and How to Get Them," "Relations with the Medical Profession," and "A Look at the Future." In these sessions, there was great emphasis throughout on prevention, quality of care, medical group practice, comprehensive service and prepayment, rehabilitation, and continuity. The conclusion of a number of speakers appeared to be that with the growth of prepaid medical care, fee-for-service solo practice is on the way out. Group practice, well supervised and with careful selection of physicians, was found to produce better medical care and at lower cost for insured workers. Likewise, developments in the direction of complete medical care rather than the further extension of limited service health centers were envisaged.

In the session devoted to "Commu-

nity Health Services and How to Get Them," Paul B. Cornely, M.D., professor and head, Department of Preventive Medicine and Public Health, College of Medicine, Howard University, reviewed the deficiencies in official health services in terms of coverage, staff, and most importantly services. In the discussion, Roscoe P. Kandle, M.D., deputy commissioner of health of New York City, gave a number of case illustrations to show that many services can best be provided through the cooperation of various community agencies. As a part of this session, labor's responsibility for occupational health maintenance was pointed out by William A. Sawyer, M.D., medical consultant, International Association of Machinists, Washington, D. C., and discussed by Jerome Pollack, program consultant, Social Security Department, United Automobile Workers, and Herbert K. Abrams, M.D., medical director, Union Health Service, Chicago. The interrelationship of Workmen's Compensation and the health of labor was pointed out, together with the fact that by and large Workmen's Compensation laws in the various states are due for an overhauling.

Leslie Falk, M.D., Pittsburgh area medical administrator, UMWA Welfare and Retirement Fund, and secretary of APHA's Medical Care Section, represented the Association at this meeting. In the closing moments of discussion, he made a plea to those administering labor health plans to carry out the recommendations and suggestions of the conference in the interest of better medical care for labor and for the entire community. Martha Luginbuhl, on the staff of the Association, represented the National Advisory Committee on Local Health Departments of the National Health Council, which she staffs on loan from APHA.

Full Proceedings of the Conference are in preparation and are expected to be available by the autumn of 1958.

Biological Stain Commission Reports

The annual meeting of the Biological Stain Commission held on April 1, 1958, agreed to adopt the color index numbers given in the second edition (1956) of the "Colour Index" sponsored by the American Association of Textile Chemists and Colorists, but to retain the traditional names of biological dyes. The 1957 Commission report showed that 86 new batches of dyes were certified and over 67,000 labels of certification issued. This represents an increase of about 30 per cent over the average number tested over the past five years.

Officers elected were:

President: Sidney I. Kornhauser, Ph.D., professor of anatomy, University of Louisville School of Medicine

Vice-President: Ralph D. Lillie, M.D., chief, Laboratory of Pathology and Histochemistry, National Institutes of Health

Secretary: Victor M. Emmel, Ph.D., associate professor of anatomy, University of Rochester School of Medicine and Dentistry

Edmund K. Kline, Dr.P.H., director of laboratories, Cattaraugus County Department of Health, is the representative of the American Public Health Association on the Commission.

Laboratory Tuberculosis Diagnosis

The Division of Special Health Services and the Microbiology Laboratories of the Communicable Disease Center of the Public Health Service are cooperating to offer a course in Laboratory Methods in the Diagnosis of Tuberculosis on October 20–31, 1958, and January 26–February 6, 1959.

This course, open to all grades of employed laboratory personnel approved by their state health officers, consists of practical laboratory training in all phases of tuberculosis bacteriology. In-

cluded are preparation of culture media, microscopy, cultural procedures, diagnostic use of animals, and testing of drug sensitivity. Students who attend the course will be offered a Student Extension Service for a period of one year thereafter.

The Center's 1958–1959 schedule of laboratory refresher training courses is now also avaliable. Between September 15 and April 10, 15 courses of from one to four weeks' duration are given in the diagnosis of parasitic diseases, rabies, viral and rickettsial diseases, and bacterial diseases. There are also courses in medical and veterinary mycology, in the study of pulmonary mycosis, and in serologic methods in microbiology. In addition, eight courses to be given by special arrangement only are announced.

No tuition or laboratory fees are charged. Reservations should be made well in advance. Application forms and further information from the Laboratory Branch, Communicable Disease Center, Public Health Service, P.O. Box 185, Chamblee, Ga.

Chest X-rays on a Selective Basis

The tuberculin skin test as the initial means of detecting tuberculosis in school health programs is now recommended to replace compulsory x-ray programs. Chest x-rays could then be limited to those with positive skin tests. This recommendation has been made jointly by the Public Health Service, the Children's Bureau, and the Office of Education. It follows a general policy recommendation of the Public Health Service some months ago that x-ray surveys be conducted on a selective rather than on a mass or community-wide basis.

The recommendation was based on a study by a joint committee of the three agencies on Health of the School Age Child. Tuberculosis case-finding technics in the light of tuberculosis prevalence, the number of cases found through x-ray programs, and the effects of periodic exposure to low level radiation were the elements in the study.

This recommendation also follows recent findings of the National Tuberculosis Association which has recently published a Tuberculin Testing Handbook which indicates that "Tuberculin testing is becoming of increasing importance in tuberculosis control programs from the standpoint of diagnosis, epidemiology, public health administration, and as a means of keeping radiation exposure to a minimum."

Permit for Migrant Labor Camps

At its recent session the New York State Legislature amended the Public Health Law requiring annual permits by operators of migrant labor camps in which 35,000 migrant farm workers are housed each year. Thus before a camp may be opened it is inspected for compliance with specific requirements of the sanitary code concerning housing, fire protection, bathing and toilet facilities, food handling and food storage facilities, water supply, and sewage disposal.

Premature Infant Care Institute

In the fall of 1958, the Institutes for Physicians and Nurses in the Care of Premature Infants at the New York Hospital-Cornell Medical Center, under the sponsorship of the New York State Department of Health and United States Children's Bureau, will begin their 10th year. These institutes are designed to meet the needs of physicians and nurses in charge of hospital premature nurseries and special premature centers, and of medical and nursing directors and consultants in state and local premature programs. The attendance at each institute is limited to six physician-nurse teams. The program for physicians is of two weeks' duration, that for nurses

of four weeks. There is no tuition fee and stipends are provided to help cover expenses during attendance. Institutes for the 1958–1959 year are September 22 and November 3, 1958; January 12, February 23, and April 20, 1959. Early application for these institutes is essential since plans are contingent on the number of applications received.

Additional information from Institute in the Care of Premature Infants, Box 143, New York Hospital, 525 East 68th St., New York 21.

Toddlers the Target

The president of the Academy of Pediatrics has in the May, 1958, Newsletter sent an urgent message to its membership urging their active cooperation in getting toddlers and preschool children immunized against polio. Because 40 per cent of preschool children have not been immunized and because they have more than three times the attack rate of paralytic polio experienced by older children, a special committee was appointed to make recommendations.

This committee suggests that state chairmen urge immunization campaigns in each county in cooperation with county medical societies. Each community is expected to work out its own campaign with the state giving general directives and stimulating local membership to activity.

Also, as recommended by the special committee, the president of the academy gave a statement to the press about the lack of polio immunization of the preschool group.

PERSONALS

ERNEST G. ABRAHAM, M.D., F.I.C.S.,† of the Mount Sinai Hospital, and medical director, City of New York Division of Veterans Affairs, has been appointed a member of the Editorial Board, Journal of the International College of Surgeons, and has been elected a member of the American Board of Legal Medicine.

ABRAHAM E. ABRAHAMSON, chief,* Wholesale Division, Bureau of Food and Drugs, New York City Health Department, and APHA representative to the Baking Industry Sanitation Standards Committee, has received the first annual award of the Central Atlantic States Association of Food and Drug Officials, "in recognition of his outstanding services to the Association and achievements in his chosen field of food and drug law enforcement."

HECTOR R. ACUÑA, M.D.,† former chief medical consultant of the World Health Organization in the Dominican Republic, now has the same position at the WHO Health Demonstration Area Project, in El Salvador.

DOROTHY E. ANDERSON, R.N., M.P.H.,† former director of nursing services, Rochester, Minn., is now director of nursing services, Chicago Chapter, American Red Cross.

WILLIAM S. APPLE, Ph.D., associate professor and head, Department of Pharmacy Administration, College of Pharmacy, University of Wisconsin, has been appointed assistant secretary, American Pharmaceutical Association, and secretary-nominate to succeed the present secretary, Robert F. Fischelis, Sc.D.,* retiring in April, 1959.

GEORGE BAEHR, M.D.,* president and medical director, Health Insurance Plan of Greater New York, has retired and has been succeeded by David P. Barr, M.D., professor of medicine, Cornell Medical College.

KATHERINE BAIN, M.D.,* former associate chief for program services, has been named deputy chief, U. S. Children's Bureau.

ANDREW F. BALKANY, M.D.,* former director, North Fraser Health Unit, British Columbia Provincial Department of Health, is now head, Maternal and Child Health Services Section, Washington State Health Department, succeeding Ellen McNellis, M.D., resigned.

ROBERT L. BERG, M.D., associate in medicine, Harvard Medical School, and associate physician, Massachusetts General Hospital, has been appointed the first Albert D. Kaiser professor of preventive medicine and community health, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.

BEATRICE BOLAN, M.D.,† former assistant to the director, Grand Rapids Department of Health, is now director, Marquette (Mich.) Health Department.

* Fellow.
† Member.

RICHARD F. BOYD, M.D., M.P.H.,* former medical director, New York Regional Office, Public Health Service, has been transferred to the Dallas Regional Office serving in the same capacity.

ARLYNN BUDER, former nutritionist, Bureau of Health Education, Cleveland Division of Health, is now nutrition consultant, Alaska Department of Health.

SIR MACFARLANE BURNET, M.D.,* director, Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia, chairman of the Commonwealth's National Radiation Advisory Committee, and a 1952 APHA Lasker Award winner, delivered the 101st Cutter Lecture on Preventive Medicine at the Harvard School of Public Health on May 26 on "Leukaemia as a Problem in Preventive Medicine."

HOMER N. CALVER,* former secretary, Public Health Committee, Paper Cup and Container Institute, is now 1959 National Health Forum consultant, National Health Council.

AGNES M. CHAMBERLAYNE, former social work consultant, Division of Maternal and Child Health, Massachusetts State Health Department, has retired after more than 16 years of service in the department.

CAROLINE A. CHANDLER, M.D.,* assistant professor of pediatrics, Johns Hopkins University School of Medicine, has been appointed chief, Division of Maternal and Child Health, Maryland State Health Department.

GEORGE W. CORNER, M.D., of the Rockefeller Institute for Medical Research, has received "for his long and continuing researches and their many fruitful contributions to the better understanding of mammalian anatomy and physiology, with particular emphasis on human reproduction," the $5,000 Passano Foundation Award for 1958, which was presented on June 25.

STANLEY P. DAVIES, Ph.D.,† recently retired general director, Community Service Society, New York, will direct a special study of mental retardation to be undertaken in October by the New York State Society for Mental Health.

MYRTLE V. DAY, former Dixon County superintendent of schools, has been appointed assistant director of health education, Nebraska Health Department.

RENE J. DUBOS, Ph.D., bacteriologist, Rockefeller Institute for Medical Research, and winner of a 1948 APHA Lasker Award, received the 1958 Howard Taylor Ricketts Award recently at the University of Chicago when he lectured on "Nutrition, Emotion, and Infection."

NICHOLAS J. FIUMARA, M.D., M.P.H.,* director, Division of Venereal Diseases, Massachusetts State Department of Public Health, has been chosen president-elect, American Venereal Disease Association.

ARTHUR S. FLEMMING, president of Ohio Wesleyan University, has been named to succeed MARION B. FOLSOM as secretary of health, education, and welfare.

WALTER B. FURBUSH, former administrative assistant to JAMES E. PERKINS, M.D.,* managing director, National Tuberculosis Association, has been appointed associate director, Personnel and Training Division.

J. ANTHONY GILLETT, M.D., M.P.H.,† former Fairbanks and northern regional health officer, Alaska Department of Health, is now deputy commissioner of health of the new state.

HARALD GRANING, M.D., M.P.H.,* former medical director, Chicago Regional Office, Public Health Service, has been transferred to the New York Regional Office, serving in the same capacity.

RICHARD HANDSCHIN, M.D.,† of the Seattle-King (Wash.) County Department of Public Health, has taken a two-year assignment as chief epidemiologist, Arabian-American Oil Company, Dharhan, Saudi Arabia. He has been succeeded by RONALD R. PETERSON, M.D., recently on leave to obtain the master's degree in public health at the University of California.

EONE HARGER, former member of the Board of Control, Department of Institutions and Agencies, has been appointed director, Division of the Aging, New Jersey State Department of Health, a new position created by the 1958 state legislature subject to appointment by the Governor and confirmation by the Senate.

COLONEL RAYMOND T. JENKINS, USAF (MC),† former surgeon, Twelfth Air Force, has been assigned to the Office of the Surgeon General, U. S. Air Force, as deputy director, Plans and Hospitalization.

ALFRED E. KESSLER, M.S.P.H.,† executive secretary, Marion County (Ind.) Tuberculosis Association, has been named president-elect, National Conference of Tuberculosis Workers, to take office at the 1959 annual meeting of the National Tuberculosis Association.

NORVIN C. KIEFER, M.D., M.P.H.,* chief medical director, The Equitable Life Assurance Society, and president of the National Health Council, has been named to the newly-formed Tuberculosis Control Advisory Committee, Public Health Service.

---

* Fellow.
† Member.

GRACE N. LANNING has been appointed consultant nurse, American Heart Association.

EUNICE RIVERS LAURIE, public health nurse, Venereal Disease Branch, Communicable Disease Center, PHS, Tuskegee, Ala., has received the third annual Oveta Culp Hobby Award, "for notable service covering 25 years during which through selfless devotion and skillful human relations, she has sustained the interest and cooperation of the subjects of the venereal disease control program in Macon County, Ala."

DOROTHY LAWSON, former medical social consultant, Philadelphia Health Department, has been appointed assistant chief, Medical Social Service Branch, Division of Indian Health, Public Health Service.

JAMES V. LOWRY, M.D., former deputy chief has succeeded the late JOHN W. CRONIN, M.D., as chief, Bureau of Medical Services, PHS. He has in turn been succeeded as deputy by ARNOLD B. KURLANDER, M.D., M.P.H.,† former assistant surgeon general in charge of the program department, who has been succeeded by JOHN C. CUTLER, M.D., M.P.H.,† former assistant director, National Institute of Allergy and Infectious Diseases.

LEONARD W. MAYO, director, Association for the Aid of Crippled Children, and chairman, Department of Social Welfare, National Council of Churches, was recently cited by the National Conference of Social Welfare "for the leadership he has given to the National Council of Churches and its constituent bodies in the formulation of constructive and mutually acceptable policies to guide the churches' concern for social welfare."

JOSEPH G. MOLNER, M.D., M.P.H.,* health commissioner of Detroit, has received the Distinguished Health Service Award of the Michigan State Medical Society for his "nationally syndicated medical column" in which he has "enhanced the public's understanding of modern medicine and the medical profession itself."

WILLIAM E. NOBLIN, JR., M.D., M.P.H.,* former director, Crippled Children's Service, State Department of Education, is now director, Division of Maternal and Child Health, Mississippi State Board of Health.

LELAND E. POWERS, M.D.,* former director, School of Public Health, and associate dean, Faculty of Medical Sciences, American University of Beirut, Lebanon, is now associate director, Association of American Medical Colleges.

A. B. PRICE, M.D., formerly loaned to the Social Security Administration (OASI) as medical advisor on disability insurance and eligibility, is now Chicago regional medical director, Public Health Service.

JOHN H. READ, M.D., formerly on the staff of the Department of Pediatrics, University of Michigan, is now assistant professor of preventive medicine and instructor in pediatrics, Faculty of Medicine, University of British Columbia.

LUCRETIA A. SAUNDERS, M.P.H.,* former health education consultant, Bartholomew County Hospital, Columbus, Ind., is now chief, Nursing Home Section, Division of Chronic Disease, Gerontology and Tuberculosis, Indiana State Board of Health.

JAMES A. SHANNON, M.D., Ph.D.,* director, National Institutes of Health, Bethesda, has received the 1958 New York University College of Medicine Alumni Association Scientific Award for "outstanding achievements in the fields of renal physiology, malarial control, and national administration of medical research."

RICHARD O'B. SHEA, M.D., M.P.H.,* director of health, Bridgeport, Conn., for 25 years has retired. HENRY P. DINAN, JR., M.D., has been appointed acting director.

CECIL GEORGE SHEPS, M.D., M.P.H.,* general director, Beth Israel Hospital, Boston, has been appointed also clinical professor of preventive medicine, Harvard School of Medicine.

MERVYN SHOOR, M.D., former chief psychiatrist, Fresno State Mental Hygiene Clinic, is now program chief, Community Mental Health Services, Santa Clara County, Calif.

ELEANOR E. SHORT, M.D., assistant chief, has been named acting chief, Alcoholic Rehabilitation Division, District of Columbia Department of Public Health, following the resignation of ANTHONY ZAPPALA, M.D., chief.

COLONEL BYRON L. STEGER, MC,* is head of the new Personnel and Training Division, Army Surgeon General's Office, created from the merger of the former Personnel and Education and Training Divisions.

RUSSELL E. TEAGUE, M.D., M.P.H.,* health commissioner of Kentucky, has been elected chairman, Ohio River Valley Water Sanitation Commission, succeeding BLUCHER A. POOLE,* director of environmental sanitation, Indiana State Health Department.

JAMES CLAUDE THOMSON, M.P.H., Ph.D.,† former medical consultant of WHO in Iran and nutrition consultant of both WHO and FAO in Pakistan and Turkey, is now professor of nutrition, Yonsei University Medi-

* Fellow.
† Member.

cal School and the Severance Medical Center, Seoul, Korea.

ORVILLE S. WALTERS, M.D., former staff psychiatrist of the Hospital in Danville, is now director, University of Illinois Health Service.

DONALD E. WILCOX, M.D., previously engaged in private practice and formerly in the Kansas City-Wyandotte County Health Department, has been appointed assistant to JAMES M. MOTT, M.D.,* director, Division of Preventable Diseases, Kansas State Health Department.

WARREN WINKELSTEIN, JR., M.D., M.P.H.,* former special research fellow, National Heart Institute, is now chief of the newly created Department of Epidemiology, Chronic Disease Research Institute, University of Buffalo, appointed under a Dr. Henry C. and Bertha H. Buswell Fellowship.

DOLORES M. ZEIS,† assistant nursing chief, Alaska Department of Health, has resigned to return to the states after 10 years in Alaska.

DEATHS

PIERRE-PAUL BOUCHARD, M.D., D.P.H.,† health officer, County Health Unit, LaMalbaie, Providence of Quebec, Canada, on April 1 (Health Officers Section).

THOMAS W. CLUNE, D.M.D., M.P.H.,* director of dental public health, Rhode Island Department of Health, Providence, in May (Dental Health Section).

EARL W. FLOSDORF, Ph.D.,* director of research, F. J. Stokes Machine Company, Forest Grove, Bucks County, Pa. (Laboratory Section).

EDWARD A. FULTON, M.S.,† consulting engineer, Fulton Engineering Company, St. Louis, Mo. (Engineering and Sanitation Section).

DOROTHY GARNETT, R.N.,† public health nurse, District II, Division of Health, Sikeston, Mo. (Public Health Nursing Section).

SETH G. HESS, C.E.,* director and chief engineer, Interstate Sanitation Commission, New York, N. Y. (Engineering and Sanitation Section).

BENZION LIBER, M.D., DR.P.H.,* director emeritus, Mental Hygiene Clinic, New York Polyclinic Hospital, on June 9 (Mental Health Section).

PROF. DR. ANDRIJA STAMPAR* of Zagreb, Yugoslavia. Professor Stampar was an Honorary Fellow of the Association.

* Fellow.
† Member.

CONFERENCES AND DATES

American Public Health Association, 86th Annual Meeting, St. Louis, Mo., Headquarters: Kiel Auditorium, October 27–31.

State and Regional Public Health Meetings:

Florida Public Health Association. George Washington Hotel, West Palm Beach. October 2–4.

Minnesota Public Health Association. St. Paul Hotel, St. Paul. September 18–19.

Nebraska Public Health Association. Castle Hotel, Omaha. September 25–26.

Oregon Public Health Association. Multnomah County Health Department, Portland. October 30–31.

South Dakota Public Health Association and Social Welfare. Huron. September 10–12.

Tennessee Public Health Association. Maxwell House Hotel, Nashville. October 1–3.

Washington State Public Health Association. Chinook Hotel, Yakima. October 26–28.

Meetings of Other Organizations Coming in August, September, and October:

American Academy of Pediatrics. Palmer House, Chicago, Ill. October 20–23.

American Association of Medical Record Librarians. Boston, Mass. October 13–16.

American Dietetic Association. Philadelphia, Pa. October 21–24.

American Heart Association. San Francisco, Calif. October 25–31.

American Hospital Association. Chicago, Ill. August 18–21.

American Veterinary Medical Association. Philadelphia, Pa. August 18–21.

Congress of the International Association for Social Progress. Brussels, Belgium. September 20–23.

Federation of Sewage and Industrial Wastes Associations. Sheraton-Cadillac Hotel, Detroit, Mich. October 6–9.

International Association for the Prevention of Blindness. Brussels, Belgium. September 8–12.

International Conference on the Peaceful Uses of Atomic Energy (Second). Geneva, Switzerland. September 1–13.

International Congress of Allergology. Paris, France. October 19–26.

International Congress of Photofluorography. Stockholm, Sweden. August 20–23.

International Congress of Psychotherapy. Barcelona, Spain. September.

International Congress of Tropical Medicine and Malaria. Lisbon, Portugal. September 5–13.

National Association of Housing and Redevelopment Officials. San Francisco, Calif. October 13–15.

National Association for Retarded Children. Philadelphia, Pa. October 8–11.

National Safety Congress. Conrad Hilton Hotel, Chicago, Ill. October 20–24.

National Recreation Association. Atlantic City, N. J. September 22–26.

Planned Parenthood Federation of America. Roosevelt Hotel, New York, N. Y. October 14–16.

United States Conference of Mayors. Roosevelt Hotel, New Orleans, La. September 11–13.

World Federation of UN Associations. Brussels, Belgium. September.

National Rehabilitation Association. Asheville, N. C. October 13–15.

YOU see better!
FINGER DEPRESSION FACILITATES CONTROL
REINFORCING FILLET IN CENTER SECTION
TWO-BEND DESIGN ELIMINATES OBSTRUCTED VISION.
CONVEX END OF BLADE CONFORMS TO TONGUE STRUCTURE
OWD Riteshape Tongue Blade is more than a piece of wood—it is an instrument. You need its advanced features. Tell your nurse to order it from your local supply house, or write for a free sample carton.
OWD Riteshape
TONGUE BLADE
Made only by OVAL WOOD DISH CORPORATION
TUPPER LAKE, N. Y.

Why Over 3,500 TB Case-Finding Projects Annually Use
POWERS X-RAY SERVICE
• POWERS SERVICE IS COMPLETE! Powers relieves project sponsors of all technical problems. Our experienced technicians work to the sponsor's schedule, with units able to take as many as 200 chest x-rays an hour. We deliver fully processed x-rays, with a viewer, to sponsor's roentgenologist.
• LOWER IN COST! The large volume of x-rays Powers handles nationally enables us to cut overhead costs to a minimum for each individual project.
• EFFICIENT! Our 20 years of experience in chest x-ray surveys from Maine to Texas have taught us to do the job quickly and effectively under many diverse conditions.
• FLEXIBLE! According to the sponsor's requirements, Powers offers either the full-size roll paper method or the 70 mm photofluorographic method – and operates either portable units or mobile units with generators.
Reg. T.M.
POWERS X-RAY PRODUCTS
Our technical advisory service is available without obligation. Write before you plan a TB Case-Finding Project!
POWERS X-RAY PRODUCTS, INC.
Photo Radiography
GLEN COVE, LONG ISLAND, N. Y.

The American Public Health Association acknowledges with deep appreciation its indebtedness to these Sustaining Members whose annual dues help support its general program

Sustaining Members

Amalgamated Laundry Workers Health Center, Inc., New York, N. Y.
Amalgamated Meat Cutters and Butcher Workmen of North America, Chicago, Ill.
American Bottlers of Carbonated Beverages, Washington, D. C.
American Can Company, New York, N. Y.
American Federation of Labor and Congress of Industrial Organizations, Washington, D. C.
Association for the Aid of Crippled Children, New York, N. Y.
Beth Israel Hospital, Boston, Mass.
Borden Company, New York, N. Y.
Chicago Office, Theatre, and Amusement Building Janitors' Union, Local 25, Chicago, Ill.
Chlorine Institute, Inc., New York, N. Y.
Department of Nursing, University of Miami, Coral Gables, Fla.
Difco Laboratories, Detroit, Mich.
Diversey Corporation, Chicago, Ill.
Equitable Life Assurance Society of the United States, New York, N. Y.
Grand Concourse Medical Group, New York, N. Y.
Harold Faggen Associates, New York, N. Y.
Health Insurance Plan of Greater New York, New York, N. Y.
Hellige, Inc., Garden City, N. Y.
Hoffmann-LaRoche, Inc., Nutley, N. J.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Association of Machinists, Washington, D. C.
International Equipment Company, Boston, Mass.
International Union, UAW, Detroit, Mich.
Jamaica Medical Group, Jamaica, N. Y.
John Hancock Mutual Life Insurance Company, Boston, Mass.
Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Licensed Beverage Industries, Inc., New York, N. Y.
Life Insurance Company of Virginia, Richmond, Va.
Merck Sharp & Dohme, Research Laboratories, Division of Merck & Co., Inc., Rahway, N. J.
Metropolitan Life Insurance Company, New York, N. Y.
Montefiore Hospital Medical Group, New York, N. Y.
National Association of Social Workers, Medical Social Work Section, New York, N. Y.
National Dairy Products Corporation, New York, N. Y.
New York Hotel Trades Council and Hotel Association Health Center, Inc., New York, N. Y.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Owens-Illinois Glass Company, Libbey Glass Division, Toledo, Ohio
The Proctor & Gamble Company, Cincinnati, Ohio
Prudential Insurance Company of America, Newark, N. J.
Rip Van Winkle Clinic, Hudson, N. Y.
Ross Laboratories, Columbus, Ohio
Ross-Loos Medical Group, Los Angeles, Calif.
Sealright Company, Inc., Fulton, N. Y.
Martin E. Segal & Company, Inc., New York, N. Y.
Sidney Hillman Health Center, New York, N. Y.
Sodiphene Company, Kansas City, Mo.
E. R. Squibb and Sons, New York, N. Y.
Steiner Sales Company, Chicago, Ill.
Sun Life Insurance Company, Baltimore, Md.
Union Central Life Insurance Company, Cincinnati, Ohio
Upjohn Company, Kalamazoo, Mich.
Winthrop Laboratories, Inc., New York, N. Y.
Wyeth Laboratories, Inc., Philadelphia, Pa.

Methods for Determining Lead in Air and in Biological Materials

This comprehensive report, first published in 1944, has been completely rewritten by the Subcommittee on the Determination of Lead in Air of the Occupational Health Section, R. R. Sayers, M.D., Chairman. It has been approved for publication by the Committee on Research and Standards. In addition to bringing the subject matter up to date technically, a more attractive and readable type and format are used. The seven parts of the report are:

I. Introduction, II. Collection of Samples, III. Preparation of Samples for Analysis, IV. Recommended Procedures, V. Dithizone Methods, VI. Physical Methods, and VII. Selected Bibliography.

69 pp. $1.25

(Reduced price on quantity orders.)

Published by:

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.

1790 Broadway — New York 19, N. Y.

Preserve your JOURNALS

With a *Jesse Jones*

Volume File

Specially designed and produced for the American Journal of Public Health, this file will keep one volume, or 12 issues, clean, orderly and readily accessible. Picture this distinctive, sturdy Volume File on your book shelf. Its rich red and green Kiver cover looks and feels like leather, and the 16-carat gold leaf hot-embossed lettering makes it a fit companion for your finest bindings.

The Volume File is reasonably priced, in spite of its costly appearance. It is sent postpaid (except in Canada and in foreign countries) carefully packed, for $2.50 each. Most members will find it more convenient and economical to order 3 for $7.00 or 6 for $13.00. Satisfaction guaranteed. For prompt shipment, order direct from the:

American Public Health Association

1790 Broadway, New York 19, N. Y.

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.

1790 Broadway **New York 19, N. Y.**

APPLICATION FOR MEMBERSHIP

(Please type or print)

NAME_____

MAILING ADDRESS_____
(street) (city) (zone) (state)

PRESENT POSITION_____
(title) (organization)

BUSINESS ADDRESS_____
(street) (city) (zone) (state)

PRIOR EXPERIENCE_____
(title) (organization) (city and state) (dates)

PLACE AND DATE OF BIRTH_____

EDUCATION (schools, dates, degrees if any)_____

PROFESSIONAL SOCIETY MEMBERSHIPS_____

Please complete application on reverse side.

REPORTS OF THE COMMITTEE ON PROFESSIONAL EDUCATION

(Officially Approved by the Governing Council of the A.P.H.A.)

Educational and Experience Qualifications of Administrative Personnel (Non-Medical) in Public Health Agencies
Educational and Experience Qualifications of Physical Therapists in Public Health Agencies
Educational Qualifications of Industrial Hygiene Personnel Other Than Medical, Dental, and Nursing
Educational and Experience Qualifications of Public Health Laboratory Workers
Educational Qualifications and Functions of Public Health Educators
Educational Qualifications of Directors of Public Health Departments
Educational Qualifications of Medical Administrators of Specialized Health Activities
Educational Qualifications of Medical Social Workers in Public Health Programs
Educational Qualifications of Nutritionists in Health Agencies
Educational Qualifications of Public Health Dental Hygienists
Educational Qualifications of Public Health Dentists
Educational Qualifications of Sanitary Engineers Engaged in the Field of Public Health
Educational Qualifications of Public Health Statisticians
Educational Qualifications of Public Health Veterinarians
Educational Qualifications of School Physicians
Educational and Other Qualifications of Public Health Sanitarians

Single copies are available without charge

Address requests to the

Book Service

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.

1790 Broadway at 58th Street **New York 19, N. Y.**

(Continued from previous page)

SECTION AFFILIATION DESIRED (choose only one)

_____Health Officers	_____Food and Nutrition	_____School Health
_____Laboratory	_____Maternal and Child Health	_____Dental Health
_____Statistics	_____Public Health Education	_____Medical Care
_____Engineering and Sanitation	_____Public Health Nursing	_____Mental Health
_____Occupational Health	_____Epidemiology	_____Unaffiliated

ENDORSER: The endorser of this application must be a Member or Fellow of the American Public Health Association. If you cannot obtain the actual signature, print the name and address so that the Administrative Office may procure it for you.

_____ _____
(signature) (address)

ANNUAL DUES: United States $12.00; elsewhere $13.00 to cover postage. The dues cover use of the services maintained by the Association and monthly receipt of the American Journal of Public Health.

The membership year is January through December. Members joining during the first six months of the year will receive the Journal from January through December. Members joining after July 1 will receive the Journal beginning with July; such applicants may pay one year's dues covering the period July through June, or one-and-a-half year's dues, thus adjusting dues to the membership calendar year.

Dues must be received before applications are reviewed by the Committee on Eligibility.

A remittance for $_____ is enclosed. Send bill to_____

DATE_____ SIGNATURE_____

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.
1790 Broadway at 58th Street New York 19, N. Y.

Publications of the APHA

American Journal of Public Health and the Nation's Health. Single copies..... $1.25

APHA Year Book..... $1.50

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners:

Part I. Nature and Uses of the Method. 1945. 71 pp. $1.00

Part II. Appraisal of Dwelling Conditions. Vol. A—Director's Manual. $3.00. Vol. B—Field Procedures. $2.00. Vol. C—Office Procedures. $2.00. 1946; or three for..... $6.00

Part III. Appraisal of Neighborhood Environment. 1950. 132 pp. $3.00

Basic Principles of Healthful Housing. 2nd ed. reprinted 1950. 34 pp. $1.00

Care of Laboratory Animals. 1954. 32 pp. ..... .75

Control of Communicable Diseases in Man. 8th ed. 1955. 212 pp. ..... .60

Diagnostic Procedures and Reagents. Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. 3rd ed. 1950. 589 pp. $6.00

Diagnostic Procedures for Virus and Rickettsial Diseases. 2nd ed. 1956. 578 pp. $7.50

Directory of Public Health Statisticians. 6th ed. Special price to members on prepaid orders only.. $1.00

Evaluation Schedule. For use in the study and appraisal of community health programs ..... .70

General Medical Care Programs in Local Health Departments. 1951. 129 pp. $1.00

Guide for the Medical and Public Health Nursing Supervision of Tuberculosis Cases and Contacts. 1953. 24 pp. ..... .30

Guide to a Community Health Study. Revised 1955. 64 pp. $1.00

Guides to Services for Handicapped Children: 1955.

Cerebral Palsy—108 pp. $1.50
Cleft Lip and Cleft Palate—80 pp. $1.50
Dentofacial Handicaps—80 pp. $1.50
Handicapped Childen—150 pp. $1.50
Hearing Impairment—1956. 108 pp. $1.50
Vision and Eye Problems—1956. 108 pp. $1.50

Health Practice Indices 1947–1948. A collection of charts showing the range of accomplishments in various fields of community health service. 90 pp. $1.00

Health Supervision of Young Children. 180 pp. .. $2.00

Housing an Aging Population. 1953. 92 pp. $1.50

Methods for Determining Lead in Air and in Biological Materials. 2nd ed. 1955. 69 pp. ... $1.25

Nutrition Practices: A Guide for Public Health Administrators. 80 pp. $1.00

Occupational Lead Exposure and Lead Poisoning. 1943. 67 pp. ..... .50

Panum on Measles. By P. L. Panum (Translation from the Danish). Delta Omega ed., 1940. 111 pp. $2.50

Principles for Healthful Rural Housing. 1st ed. 1957. 30 pp. $1.00

Proposed Housing Ordinance. 1952. 24 pp. $1.00

Public Exposure to Ionizing Radiations. What Public Health Personnel Needs to Know. 1958. 64 pp. $1.35

Shattuck Report, The. Report of the Sanitary Commission of Massachusetts: 1850. 321 pp. $4.50

Public Health Career Pamphlets:

Public Health—A Career with a Future. Revised edition. 1954 ..... .25

Selected Papers of Joseph W. Mountin, M.D. 1956. 356 pp. $5.00

Standard Methods for the Examination of Dairy Products. 10th ed., 1953. 345 pp. $5.50

Microbiological Examination of Milk and Cream: Chapter 2 only. 64 pp. ..... .75

Photographic Sediment Charts..... $1.75

Standard Methods for the Examination of Water, Sewage and Industrial Wastes. 10th ed. 1955. 552 pp. $7.50

Special price to members of APHA, AWWA, and FSIWA on prepaid orders only for a single copy.. $6.50

Standards for Healthful Housing:

Planning the Home for Occupancy. 1950. 90 pp... $2.00

Construction and Equipment of the Home. 1951. 78 pp. $2.00

Swimming Pools and Other Public Bathing Places. Recommended Practice for Design, Equipment and Operation of. 10th ed., 1957. 60 pp. .. $1.00

35 Year Index of the American Journal of Public Health. Years 1911 to 1945. 340 pp. Buckram ed. $7.00. Paper ed. $3.75

Order from the Book Service — Advance Payment Is Requested

Reprints from the American Journal of Public Health

Bacterial Cleanability of Various Types of Eating Surfaces. February, 1953. 12 pp. ..... .25

Bookshelf on Epidemiology and Evaluation, The Medical Officer's. April, 1957. 16 pp. ..... .35

Bookshelf on Foods and Nutrition. April, 1955. 12 pp. ..... .25

Bookshelf on International Health. April, 1958. 12 pp. ..... .25

Certain Aspects of the Microbiology of Frozen Concentrated Orange Juice. June, 1956. 8 pp. .. .10

Creative Health and the Principle of Habeas Mentum. February, 1956. 12 pp. ..... .25

Driver Behavior and Accidents. May, 1957. 8 pp. .10

Givers' Dilemma. Editorial. October, 1954. 4 pp. Free

Lemuel Shattuck—Still a Prophet. February, 1949. 27 pp. ..... .25

The Local Health Department—Services and Responsibilities. An official statement of the American Public Health Association. March, 1951. 8 pp. .10

On the Use of Sampling in the Field of Public Health. June, 1954. 24 pp. ..... .40

Poultry Inspection. Official Statement of APHA. November, 1957. 12 pp. ..... .50

Public Health Problem of Accidental Poisonings. August, 1956. 8 pp. ..... .10

State Health Department—Services and Responsibilities. February, 1954. 20 pp. ..... .35

Suggested Home Accident Prevention Activities for Health Departments. May, 1956. 8 pp. .... .10

Tax-Supported Health and Welfare Services. January, 1957. 8 pp. ..... .15

Tax-Supported Medical Care for the Needy. October, 1952. 20 pp. ..... .10

Order from the Book Service — Advance Payment Is Requested

DIRECTORY OF EXHIBITS

86th Annual Meeting

St. Louis, Missouri — *Kiel Auditorium* — *October 27–30, 1958*

AIRKEM, INC., New York, N. Y., Booth 54.

ALOE SCIENTIFIC DIVISION OF A. S. ALOE CO., St. Louis, Mo., Booths 22 and 23.

AMERICAN CAN CO., New York, N. Y., Booths 106 and 107.

SURGICAL PRODUCTS DIVISION, AMERICAN CYANAMID CO., Danbury, Conn., Booth 95.

SCIENTIFIC PRODUCTS DIVISION, AMERICAN HOSPITAL SUPPLY CORP., Evanston, Ill., Booth 102.

AMERICAN MEDICAL ASSN., TODAY'S HEALTH MAGAZINE, Chicago, Ill., Booth 103.

AMERICAN OPTICAL CO., INSTRUMENT DIVISION, Buffalo, N. Y., Booth 98.

AMERICAN TOBACCO CO., RESEARCH LABORATORY, Richmond, Va., Booths 65 and 66.

ASSOCIATION CONVENTIONS EXHIBITS, New York, N. Y., Booth 31.

THE ATOMIC SHIELDING CODE AUTHORITY, INC., Philadelphia, Pa., Booth 62.

BALTIMORE BIOLOGICAL LABORATORY, INC., DIVISION OF BECTON, DICKINSON AND CO., Baltimore, Md., Booths 75 and 76.

BECTON, DICKINSON AND CO., Rutherford, N. J., Booths 75 and 76.

BELLCO GLASS INC., Vineland, N. J., Booth 60.

BELTONE HEARING AID CO., AUDIOMETER DIVISION, Chicago, Ill., Booth 104.

BLAKISTON DIVISION, MCGRAW-HILL BOOK CO., INC., New York, N. Y., Booth 6.

HOMEMAKERS PRODUCTS DIVISION, GEO. A. BREON AND CO., New York, N. Y., Booth 12.

BRISTOL LABS., INC., New York, N. Y., Booth 87.

BRISTOL-MYERS PRODUCTS DIVISION, EDUCATIONAL SERVICE DEPT., New York, N. Y., Booth 89.

CARNATION CO., Los Angeles, Calif., Booth 96.

CASE LABORATORIES, INC., Chicago, Ill., Booth 97.

CEREAL INSTITUTE, INC., Chicago, Ill., Booth 13.

CHILEAN IODINE EDUCATIONAL BUREAU, INC., New York, N. Y., Booth 101.

THE COCA-COLA CO., Atlanta, Ga., Booth 7.

CORN PRODUCTS SALES CO., New York, N. Y., Booth 67.

DIFCO LABORATORIES, Detroit, Mich., Booth 78.

E. I. DU PONT DE NEMOURS AND CO., Wilmington, Del., Booths 36 and 37.

ENCYCLOPAEDIA BRITANNICA, INC., Kansas City, Mo., Booth 46.

EVERPURE, INC., Chicago, Ill., Booth 86.

FORSTER MANUFACTURING CO., INC., Farmington, Me., Booth 47.

GALVANIZED WARE MANUFACTURERS COUNCIL, Chicago, Ill., Booth 21.

GETZ EXTERMINATORS, INC., Atlanta, Ga., Booth 17.

HALSEY X-RAY PRODUCTS, INC., Brooklyn, N. Y., Booth 51.

HACH CHEMICAL CO., Ames, Ia., Booth 29.

HARTZ MOUNTAIN PRODUCTS CORP., New York, N. Y., Booth 26.

HEALTH INSURANCE COUNCIL, New York, N. Y., Booth 105.

HERCULES FILTER CORP., Hawthorne, N. J., Booth 58.

HOBART MANUFACTURING CO., Troy, O., Booth 81.

JOHN HANCOCK MUTUAL LIFE INSURANCE CO., Boston, Mass., Booth 49.

KIMBERLY-CLARK CORP., CELLUCOTTON DIVISION, Neenah, Wis., Booth 59.

KIMBLE GLASS CO., Toledo O., Booth 16.

KNAPP MILLS, INC., Long Island City, N. Y., Booth 61.

LICENSED BEVERAGE INDUSTRIES, INC., New York, N. Y., Booth 74.

THE LORVIC CORP., St. Louis, Mo., Booth 94.

DIRECTORY OF EXHIBITS (cont.)

86th Annual Meeting

St. Louis, Missouri *Kiel Auditorium* *October 27–30, 1958*

THE MACMILLAN CO., New York, N. Y., Booth 19.

MAICO ELECTRONICS INC., Minneapolis, Minn., Booth 91.

MEDICAL CASE HISTORY BUREAU, New York, N. Y., Booth 24.

MEDICAL COACHES, INC., ONEONTA, N. Y., Booth 57.

MERCK SHARP AND DOHME, DIVISION OF MERCK AND CO., INC., Philadelphia Pa., Booth 82.

THE C. V. MOSBY CO., St. Louis, Mo., Booth 77.

NATIONAL AUTOMATIC MERCHANDISING ASSN., Chicago, Ill., Booth 43.

NATIONAL DAIRY COUNCIL, Chicago, Ill., Booth 79.

NATIONAL LIVE STOCK AND MEAT BOARD, Chicago, Ill., Booth 35.

NUCLEAR-CHICAGO CORP., Chicago, Ill., Booth 68.

HERMIEN NUSBAUM AND ASSOCIATION, Chicago, Ill., Booth 56.

OFFICE MACHINES, INC., St. Louis, Mo., Booth 5.

OVAL WOOD DISH CORP., Tupper Lake, N. Y., Booth 90.

PARKE, DAVIS AND CO., Detroit, Mich., Booth 11.

PEPPERIDGE FARM INC., Norwalk, Conn., Booth 8.

PEPSI-COLA CO., New York, N. Y., Booths 27 and 28.

PET MILK CO., St. Louis, Mo., Booth 48.

PFIZER LABORATORIES DIVISION OF CHAS. PFIZER AND CO., INC., Brooklyn, N. Y., Booths 1, 2, 3, 4, 38, 39, 40, 41 and 42.

POWERS X-RAY PRODUCTS, INC., Glen Cove, N. Y., Booth 14.

THE PROCTER AND GAMBLE CO., Cincinnati, O., Booth 80.

PROFESSIONAL TAPE CO., INC., Riverside, Ill., Booth 9.

PUBLIC HEALTH COMMITTEE OF THE PAPER CUP AND CONTAINER INSTITUTE, New York, N. Y., Booths 44 and 45.

ROSS LABORATORIES, Columbus, O., Booth 55.

W. B. SAUNDERS CO., Philadelphia, Pa., Booth 92.

SEALRIGHT CO., INC., Fulton, N. Y., Booths 99 and 100.

THE SEVEN-UP CO., St. Louis, Mo., Booths 70 and 71.

SMITH KLINE AND FRENCH LABS., Philadelphia, Pa., Booths 32 and 33.

SONOTONE CORP., Elmsford, N. Y., Booth 73.

E. R. SQUIBB & SONS, New York, N. Y., Booth 20.

STERWIN CHEMICALS, INC., New York, N. Y., Booth 50.

SWIFT AND CO., CANNED FOODS DEPT., Chicago, Ill., Booth 63.

TAMPAX, INC., New York, N. Y., Booth 88.

THE TECHNICON CO., INC., Chauncey, N. Y., Booth 15.

TITMUS OPTICAL CO., INC., Petersburg, Va., Booth 18.

U. S. BREWERS' FOUNDATION, INC., New York, N. Y., Booth 10.

VESTAL, INC., St. Louis., Mo., Booth 53.

WARING PRODUCTS CORP., New York, N. Y., Booth 93.

WEST CHEMICAL PRODUCTS, INC., WEST DISINFECTING DIVISION, Long Island City, N. Y., Booth 84.

WYCO INTERNATIONAL, Cleveland, O., Booth 34.

WYETH LABORATORIES, Philadelphia, Pa., Booth 72.

ZENITH RADIO CORP., HEARING AID DIVISION, Chicago, Ill., Booth 85.

Directory of Health Service

BLACK & VEATCH

Consulting Engineers

Water — Sewage — Electricity — Industry

Reports, Designs, Supervision of Construction, Investigations, Valuation and Rates.

1500 Meadow Lake Parkway, Kansas City 14, Mo.

T P I

(Treponema Pallidum Immobilization Test)

Information on fees, and on collection and submission of specimens furnished upon request

THE DICKMAN LABORATORIES

1415 W. Erie Ave. Philadelphia 40, Pa.

ROY B. EVERSON

Water Treatment Service since 1900 for Swimming Pool Circulating Systems. Purification Systems as applied to Sewage Treatment and Water Works. A New System for Automatic Control.

215 W. HURON ST. CHICAGO 10, ILL.

EMERSON VENABLE, P. E.

Chemist and Chemical Engineer

Atmospheric Pollution.

Industrial Hygiene Chemical Warfare

6111 Fifth Ave., Pittsburgh 32, Pa.

PROFESSIONAL EXAMINATION SERVICE

A Personnel Administration Service in the Field of Public Health

Available to State and Local Health Departments and Merit Systems

Examinations Field Consultation

American Public Health Association, Inc.
1790 Broadway, New York 19, N. Y.

keep milk fresh to the last drop

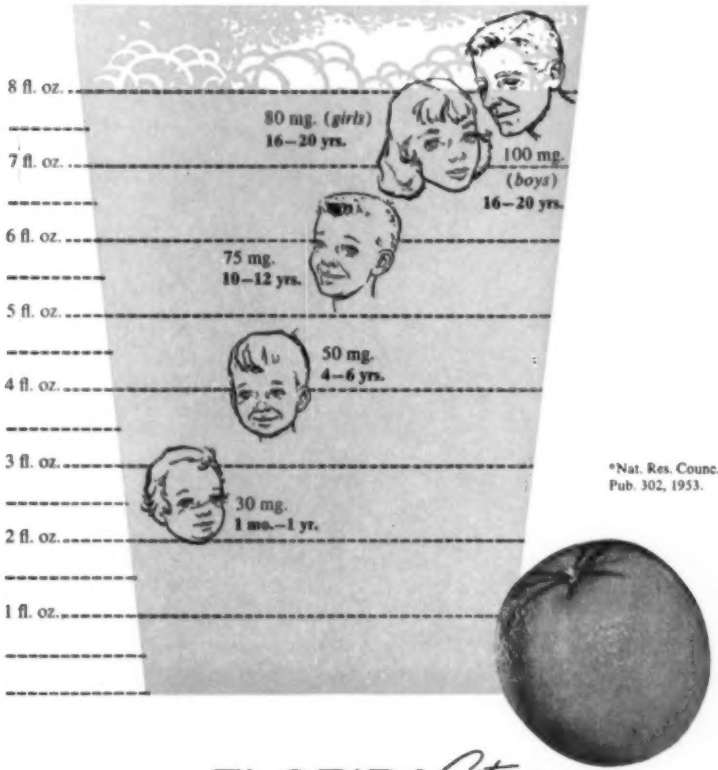
• From dairy to consumer these modern, practical closures completely seal the bottle mouth. On the capping line, and during delivery, hands never touch the pouring lip.

In the home, this cleanliness and sure protection continues. Seal-Hood and Seal-Kap closures snap tightly back on after each use, keeping milk at the peak of freshness and purity until the bottle is empty. And because both cap and seal are combined in one unit, users enjoy far easier handling than with ordinary caps.

Capping with Seal-Hood and Seal-Kap is a *single operation* process. Naturally, dairymen benefit from sizable savings in milk loss, time and maintenance costs . . . because no separate hooder is needed.

AMERICAN SEAL-KAP CORP.
11-05 44th Drive
Long Island City 1, N. Y.

for developmental years
orange juice
capably supplies
recommended daily
intakes of vitamin C*



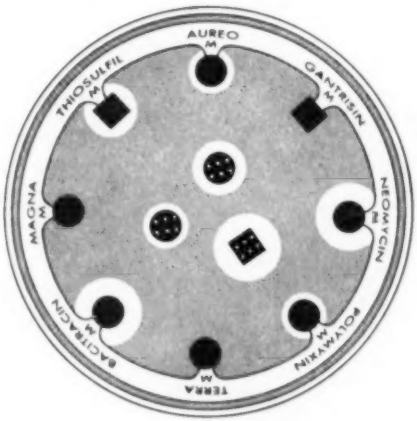
*Nat. Res. Counc., Pub. 302, 1953.

FLORIDA *Citrus*
COMMISSION • LAKELAND, FLORIDA
ORANGES • GRAPEFRUIT • TANGERINES

DIFCO

for **FAST, ACCURATE, DEPENDABLE**

Microbial Sensitivity Testing



BACTO

UNIDISK

and

BACTO

SENSITIVITY DISKS

10 to 12
susceptibility tests
at one time

for 10 years the preferred reagents because . . .

29 agents for maximum choice of therapeutic agents
3 concentrations to give greatest selectivity
278 packagings for convenience
Precise readings without cross-reaction
Greatest economy
Accurately standardized

Bacto-Unidisks combine eight therapeutic agents in a single sterile device individually sealed in a plastic container to assure sterility. Bacto-Unidisks provide for ready identification by use of characteristic color as well as name of agent and its concentration.

Bacto-Sensitivity Disks are prepared in three concentrations of each agent; colored and marked for quick and accurate identification.

AVAILABLE ON REQUEST

Bulletin No. 152, describing Bacto-Unidisks
Bulletin No. 146R, Microbial Sensitivity Testing
Report sheets for reporting Microbial Sensitivities

DIFCO LABORATORIES

DETROIT 1, MICHIGAN